THE BUILDER
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Conkwell Grange, Wiltshire: View in Garden.

Mr. E. Guy Dawber, A.R.A., F.R.I.B.A., Architect.

MEETINGS

SATURDAY, *January* 11.

Architectural Association. Mr. Howard Robertson on "Architecture in Daily Life." 3 p.m.

Institution of Civil Engineers. Visit to the Reconstruction Works at Lambeth Bridge.

MONDAY, *January* 13.

Architectural Association. Professor R. E. Stradling on "The Work of the Building Research Station." 7 p.m.

TUESDAY, *January* 14.

Incorporated Institute of British Decorators. Mr. H. M. Dockrell on "The Decorators' Trip of 1927." 8 p.m.

Institution of Electrical Engineers (Scottish Centre). Messrs. S. E. Monkhouse and L. C. Grant on "The Heating of Buildings Electrically by means of Thermal Storage." North British Station Hotel, Edinburgh. 7 p.m.

WEDNESDAY, *January* 15.

L.C.C. Central School of Arts and Crafts. Sir Banister Fletcher, P.R.I.B.A., on "Roman Architecture." 6 p.m.

Royal Society of Arts. Mr. J. Burton on "Quality in Pottery." 8 p.m.

THURSDAY, *January* 16.

Institute of Arbitrators. Mr. W. E. Watson on "Essentials of Contract." 4 p.m.

West Surrey Building Trades Employers' Association. Lt.-Col. S. H. Page on "Sanitation." At the Borough Hall, North-street, Guildford. 6.30 p.m.

Victoria and Albert Museum. Mr. B. Rackham on "Italian Majolica." 5.30 p.m.

FRIDAY, *January* 17.

London Society. Mr. F. W. Parker on "London's Parks and Open Spaces." 5 p.m.

Architecture Club. Discussion on "The Charing Cross Bridge Scheme." 8 p.m.

Institution of Mechanical Engineers. Informal Meeting. 7 p.m.

Institution of Municipal and County Engineers. Meeting of South Midland District. At Watford. 11.15 a.m.

House, Number 70, Grosvenor Street, W.: Drawing Room.

Mr. Oliver Hill, F.R.I.B.A., Architect.

PAST AND PRESENT.

WE have still to record another year added to the long list of post-war years that date the period of our industrial depression. There is no general trade improvement that even the most optimistic Party follower can honestly claim, nor is there any ground for believing that a real understanding of the problem is at hand. There is a ray of hope, however, and we state it with the greatest respect to Party politicians. There is the hope that something vital in economics has been discovered when it is realised that unemployment or bad trade—whatever we care to call it—is not a simple condition that can be cured by any political nostrum. So long as this belief existed there was the obvious danger that the disease would continue until all Parties was given the opportunity in turn to taste failure. It is a negative form of remedy, we admit, but there is hope when we search for an economic reason rather than hope, like Micawber, for something to turn up. This, we repeat, is written with no disrespect, believing as we do that the causes of unemployment being fundamental there can be no artificial remedy. We have no great hopes for our gigantic schemes of employment, in the sense that they are a cure for bad trade, but on the whole, perhaps it is better we should have public works carried out at an economic loss than our unemployed should lose completely the habit of work by being kept in idleness. The reservation we have in mind is that the provision of public work should not obscure the implication of unemployment or vitiate the true remedy when we discover it. It is perhaps the most comforting view to hold that each year brings us nearer to the time when we shall have given opportunity to test every theory before facing the ordeal by costs of production.

We fully admit that any comments upon industrial conditions may seem to be quite unnecessary, so detached or immune is the building industry from the immediate effect of general trade depression. A shortage of houses and the immediate needs of commerce have maintained at least a certain, if limited, market, and a somewhat high level of costs for the building industry. Nevertheless, it is a narrow view that regards this position as wholly satisfactory. Industrial depressions affect the earning and spending capacity of the whole nation, and though we think and write of certain things as necessities, we are in the unfortunate position of regarding them as nothing but necessities. There is little room in such a life for the finer things that ennoble life and make the world more beautiful—in short, there is not enough room for the art of building. If anyone feels inclined to doubt this conclusion he has only to think of the position which this material problem of ways and means has assumed in recent years. It has become the main problem of the State and the main topic in our daily reading matter. Many, no doubt, will question the operations of cause and effect as we see it, but few will question the moral effect of a national mind almost wholly absorbed in material things. The immediate effects we consider we see every day: the other, which is a habit of thinking, must have its penalty in the years which are to come. To the building trade the situation may appear to be quite different. It has taken full advantage of the abnormal conditions, but does it recognise that repercussions are possible?

We see the immediate effects of our straightened circumstances and dear commodities in the search for cheapness that has produced the crop of mean and ugly houses. Local materials tend to become luxuries, and we are sometimes tempted to think that our conception of beauty must have altered with our circumstances. Fortunately the answer to this is supplied by the increasing storm of complaint against the spoliation of the countryside from building operations. Rigid economy, in our opinion, is at the root of the whole problem despite the facile generalisation that "economy and seemliness are inseparable if they are cemented by brains." There are many architects who can prove from painful experience that there are limits to the exploitation of cheapness in building, just as there are limits to the minimum size of a house regardless of the high costs of building. No one can accuse this generation of building houses that are bigger than necessary, and small as they are, heavy sacrifices have often to be made in quality. Our ideas upon ugliness in building have reached no further than the plea for protecting areas of the country intact. It is a negative remedy for which we should be thankful, but it is hard to believe that ugliness in building is inevitable. Although we hope that in the future some form of protection from ugly buildings will be devised, we realise the consequences of an embargo at a time when ugliness, in many cases, is the excuse for economy. As an excuse it is at least easier understood than the ugliness that proceeds from vulgar display.

It may be argued that the structure of society has altered and consequently affected our conception of the home. To this it could be replied that many things have contributed towards our making a virtue of necessity and regarding the art of building as one that offers little attraction to-day. It is our hope that legislators may come to see that the desire to build a home should be encouraged, not by granting sums of money—a process that is doubtful in its results—but by directly relieving the burdens of ownership. There is ample scope here for a number of reforms.

The past year was noticeable for numerous discussions in the Press upon the ugliness of the proposed schemes for the electrification of the country, and upon the æsthetic qualities characteristic of good sculpture. In the appearance of the utilitarian things that contribute to our well-being, and in the appearance of the things that are more definitely æsthetic than useful, we were treated to opinions diametrically opposed. The outlook is not particularly comforting. We seem to have reached the stage when it is assumed that we must hide certain things merely because we cannot conceive them to be beautiful. Posterity may consider we have hidden the wrong things.

We note in some of the arts a growing tendency to make their understanding more difficult. Literature, painting, sculpture, and music seem to be attempting to express something that appears to us to be the result of self-imposed difficulties. Architecture and furniture, on the other hand, are showing signs of a revival of the cult of simplicity, based not upon our conception of the simple and unaffected, but upon the deliberate evolution of the simple from abstract reasoning. These movements—relatively small at the moment—may be merely echoes of the past, or they may be indicative of the insistent modern demand for something different, for a change to mark the spirit of the time. To the unsympathetic, the arguments are stimulating even when most perverse.

NOTES

1930.

THOUGH the New Year opens not without its anxieties for architecture in the Government plans which would sacrifice architectural freedom to the control of bureaucracy; and not without anxiety, also, for craftsmanship from the danger of the freedom of the craftsman's work being sacrificed more and more to the office drawing and the conventional requirements of commercial ornament, there is some reason for encouragement. The theory that we must accept our time, which only allows of the second best, as though in Shakespeare's phrase, we were "villains of necessity," should not lead us to forget that men who have achieved much have never accepted their age, and that their ceaseless endeavour has been to ennoble it. Keeping in with the customs has more of cunning than of courage in it and to wail for the leadership of others is to renounce our own leadership. But we are realising more to-day that it is not what others do, but what we do ourselves that matters; that it is our thought and action as individuals, wisely or not directed, on which the future depends. When we accept this ultimate obligation of citizenship we shall not wait on others but understand, whether it be architecture or craftsmanship, it is for both architect and craftsmen to preserve their own kingdom.

The New Year.

NONE the less each New Year as it opens seems an easing of the load, and even though it must be taken up again it will wear a new aspect from the renewed vigour with which we regard it. It was said by Sancho Panza, "there is a remedy for everything but death," and we ought not to take our anxieties too sadly. When one door shuts another opens, and we should keep our eyes on the new horizons. If it is the loss of markets and financial stress on one side, there is new creative development on the other. For it is what man creates himself which is more than markets or territories, if unbowed by danger he finds within himself good fortune. A pseudo-science is making much of cause and effect, to assume dire conclusions, yet who knows but that the effects which we assume to relate so easily are the result of causes whose origins are as remote as the most distant star. Not by such parlour computations are cause and effect interpreted, except to feed our pessimism; but through beliefs that enlarge the conceptions of human life. And seeing life as a whole we shall not despair of it because it embraces the unknown, but find amidst all our uncertainties:—

"The World's unwithered countenance
Is bright as at Creation's day."

On Looking Backwards.

THE inherent conservatism of the English nature directs us by use and wont to looking behind us for precedent and authority, and this has its value, but unfortunately it is too often accompanied by a distrust of ideas, and we have a poor habit in thinking. It is therefore particularly difficult to find support for new projections of thought and action. Yet the pressure of our affairs should guide us to the necessity of not taking things at second hand but for some bold and independent thinking. What has been will no longer support us now, and new orientations of thought are vital to the prospects of the nation. To support what is established may become less important than to establish what is worth supporting, and this can only be done as we think more for ourselves. There is also less complaint when we find ourselves equal to our occasions. So with the Charing Cross scheme; if we could be inspired beyond the utilitarian mediocre outlook with which it has been conceived, into a bold enterprise for the further beautifying of London magnificently conceived, what a great step forward would have been taken. But our poor habit of thinking and distrust of ideas must be abandoned, and a finer statesmanship and artistry must prevail over the counting house if this is to take place.

Detail over Windows, The Holker Law Library, Gray's Inn.

Modelled by MR. C. L. J. DOMAN. SIR EDWIN COOPER, Architect

Peterborough Town Hall: from a Lighted Model.

MR. E. BERRY WEBBER, A.R.I.B.A., Architect.

Official and Private Architecture.

THE long letter by Mr. Ernest H. Bright which appeared in *The Times* on the 3rd inst. is of interest if for no other reason than that it expresses the views of one who was a former member of the Office of Works "with an experience of over 40 years." His observations, however, do little, if anything, to meet the criticisms of the architectural profession that the increase of the work of official architects is not likely to advance the art of architecture; that it is not in the best interests of the State, while it is distinctly unfair to the large body of private practitioners. It is not easy to understand why he should go to the trouble to tell us that the technical staff of H.M. Office of Works consists of men who have been specially trained as architects. No one in the architectural profession is, we believe, unaware of the fact, but that does not make the position more helpful to the private architect; and though it affords an assurance that the work done by the Office of Works is, as we know it to be in fact, of a satisfactory character generally speaking, it does not afford ground for hope that the art can find its fullest expression this way.

The Practice of the Office of Works.

MANY other comments could be made on Mr. Bright's letter, but his last observation is specially deserving of note. He says: "I would observe that it has ever been the practice of the Department to invite designs from unofficial architects in the case of the erection of buildings of unusual importance, either owing to their special object or prominent position." The writer, presumably, is unaware of the long list prepared by Sir Brumwell Thomas and published in *The Times* last June, of important public buildings which were to be commenced or carried out by the

Office of Works during the past year, and he overlooks the case of the Calton Jail site in Edinburgh and the determination of the First Commissioner of Works that the new buildings to be erected there shall be designed by the Office of Works. The buildings to be erected are certainly important, and anyone who knows Edinburgh must admit that the site is important. The fact is, that whatever the position in the past may have been, the intention now appears to be to entrust to the Office of Works really important work which ought to be thrown open to competition.

The Italian Exhibition.

It would be possible to think that as we have always with us at the National Gallery magnificent examples of the art of Italy, the enthusiasm for the Academy exhibition was only an instance of that popular appreciation that also fills the National Gallery from day to day. This can hardly be said to be the case, for the latter is but a languid interest by the side of this very fashionable affair at the Academy. We shall all wish to see so magnificent a collection, and its bearing on present day art should not be unimportant, however far away from us are many of its interpretations; for to take only subject matter, we have enclosed much further horizons. These Italian pictures reaffirm for us the nearness of art to nature and reality, seen through the artists' vision, creatively expressed against the abstractions and theories, the mannerisms and deformities from which we suffer, and which tend to replace the simpler love of truth and beauty. We recognise in them the fundamental value of the art of painting, and with what magnificence the vehicle as a means of expression can be used. Only on such a basis of thoroughness and devotion can the art of to-day become as significant for us as is this Italian art of its own country and time.

The R.I.B.A. Students' Competitions.

When we remember that the results of the various annual competitions of students for the prizes offered by or through the Royal Institute of British Architects may have a definite result on the future outlook of students, we can see how important it is that the conduct and completion of these competitions should be carefully considered. One cannot help feeling that the real architectural quality of a design should be of first account and that comparatively trivial mistakes should not count against this. We should certainly hope that one result of the Tite competition this year would be to afford encouragement to certain of the students. For whatever may be said of the value of these competitions none can deny that the discriminative appreciation they evoke counts as something for the direction of the energy of students. Though some of the competitions this year have had a numerous response, such as the Soane and the Tite, we are surprised that such a tempting prize as the Bossom could not be awarded, and at the lack of response for the Owen Jones, which should be one of the most tempting competitions.

Newcastle House, Lewes.

Newcastle House, Lewes, should, of course, have merited more appreciation from the citizens of Lewes, but practical considerations and the approval of a well-known architect prevailed for its destruction. Outsiders may well wonder why townsfolk ruthlessly destroy these interesting evidences of the past and may also wonder why a careful reproduction of a pleasing but certainly not a very distinguished piece of architecture provides any atonement for doing away with a pleasant old-world building of a kind that has helped to create the charm of old English towns. We very much doubt if all the facts about the old building, including the interesting internal work, were fully disclosed when its destruction was first mooted. It is perhaps of little moment now to raise the matter again; but one could wish the towns and cities of our country could be saved from such destruction of pleasant evidences of past work as has happened at Lewes.

Preserving Old Buildings.

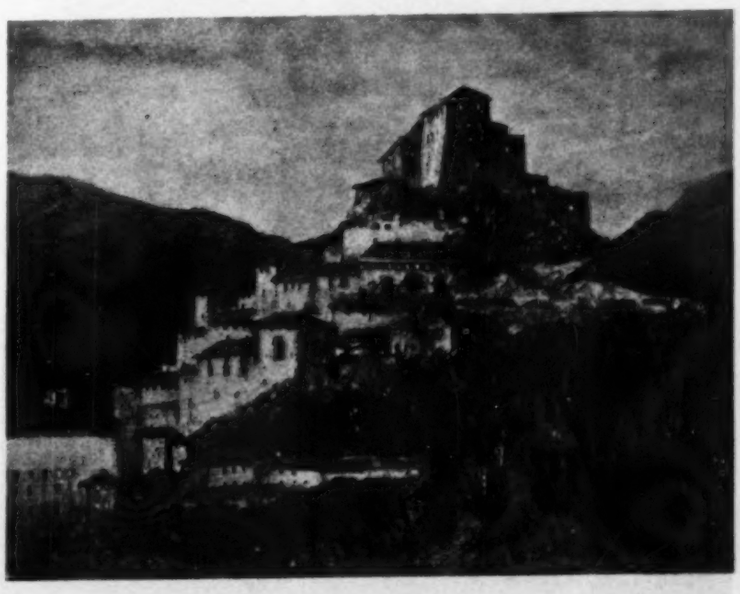
A correspondent writes:—"Much has been written recently regarding the 'vandalistic' reconstruction of Newcastle House at Lewes by the East Sussex County Council, and Sir Reginald Blomfield and Mr. Morley Horder have fought a verbal duel on the subject. Surely a good word may now be said for the quiet but valuable work that is now being carried out by many municipalities in preserving old buildings which have come into their possession in the last few years. The other day I walked round Woolaton Hall, the magnificent Elizabethan building that was purchased from Lord Middleton by the City of Nottingham. I remember it twenty years ago only occupied by the family for about three weeks in the year. To-day both the house and the grounds are visited by thousands of people, and the historic building is being most carefully preserved. Fires are lit in the principal rooms so as to guard the panelling from damp. Municipal enterprise can be a benefactor to ancient buildings."

The R.I.B.A. Meeting.

The threefold attractions of Dr. Unwin's paper on "Greater London Regional Planning," the presentation to Messrs. Easton and Robertson of the R.I.B.A. London Architecture Medal for 1928, and the Deed of Award of Prizes and Scholarships drew a very large attendance to the Institute premises on Monday night. Apart from the paper there were several excellent speeches. Colonel C. H. Bressey's suggestion for the cure for "ribbon" development was received with considerable pleasure, although it was hardly to be taken seriously.

The Opportunity of Charing Cross.

Chief interest centred on Dr. Unwin's paper, reported on page 127. On the Charing Cross question, his remarks were much to the point. "A better example of the need for considered planning could hardly be found than is furnished by the controversy about the Charing Cross Bridge. Every detailed aspect of the problem seems to have been discussed in isolation, whether it be the interest of the railway company, the navigation of the river, the connection of the approaches, the form of the bridge, and even the creation of terminal features! But no master plan for the district affected has been forthcoming. Such plan alone could bring these and many other seemingly conflicting views and interests



Subiaco, Italy.

From a Water-Colour Drawing by Sir Edwin Cooper.

into some coherent relation and proportion to each other. The importance to the area affected as the geographical centre of this great city cannot easily be exaggerated. The district is one ripe for redevelopment. Only such a plan can authoritatively set at rest the serious doubt whether the scheme is really the first piece of a fine new garment, or merely another patch on the seat of an old one. Without some master plan for the great urban regions, it is impossible to view each problem as it arises in true perspective, or to see its proper relation to the whole."

An Australian Success.

During the course of the evening it was announced that the R.I.B.A. Tite Prize had been won by Mr. Arthur Charles Collins, of the Public Works Department, Melbourne, Australia. The subject for the competition was "A Monastery." The winning of this prize by a young Dominion architect is a direct result of the reform recently instituted by the R.I.B.A., whereby it has been made possible for Dominion architects to compete on equal terms with architects in Great Britain. Under the old system, although the prizes were open to the Empire, it was almost impossible owing to the limitations of time for architects overseas to compete. Not unnaturally the new system involved a certain measure of decentralisation. The R.I.B.A. allied architectural societies in the various localities are made entirely responsible for the selection, as a result of preliminary competitions held by them, of a certain number of candidates to take part in the final competition, the programme for which is sent out from London. In the list of prize winners just published the names of two women appear. These successes show that women are maintaining the degree of success they have already achieved in the architectural profession.

The Skyscraper Limit.

That there really are some possible limits to skyscrapers seems likely at present, but one would hardly be bold enough to rule out the possibilities of the future. If the higher we go the more money we make the terrors of skyscrapers are likely to increase, unless a wise and sane control is exercised by the authorities. If the grave drawbacks of the lower stories and the buildings by which they are surrounded are adjudged to be such a serious menace to city amenities as to outweigh the advantages of speculative values in high building, we may arrive at a limit to the skyscraper. Mr. Corbett writes on the limits of our sky-scraping in the *New York Times* Magazine in an interesting and humorous way. For the present he seems to regard 100 stories as about the possible limit. That we should be able to go up so high with buildings is not an engaging possibility to the architects in this country. Whilst the great heights to which we can raise our buildings help to increase the profits of the promoters, they present problems of architectural design which in the hands of expert designers make a certain appeal but can hardly appeal to the architectural profession as a whole, and in this country we are probably profoundly grateful that the nightmare of skyscrapers will mostly be found in other lands.

R.I.B.A. Prizes for Schools.

Great success has attended the scheme recently started by the R.I.B.A. for interesting boys and girls in public and secondary schools in architecture. It included the institution of two prizes, one of £2 10s. for essays on subjects of architectural interest, and the other of £2 10s. for sketches or scale drawings. In addition to the institution of these prizes, the R.I.B.A. have sent to public and secondary schools lists of books on architecture suitable for school libraries. They have also made arrangements in conjunction with their allied architectural societies whereby public and secondary schools may obtain the services of lecturers to give lectures on architecture. The prize for essays has been won by Miss Dorothy Pilgrim, of Notre Dame High School, Battersea, for her essay on "Southwark Cathedral," while the prize for sketches and scale drawings was won by H. I. Gordon, of Hymers College, Hull.

The Australian War Memorial.

As an instance of the slow progress which is made with some public building affairs, we note that detailed working drawings ready for the calling of tenders and erection of the Australian National War Memorial at Villers-Bretonneux, France, have been in the hands of the Government for over twelve months. Some six months ago the plans of Mr. Wm. Lucas, F.R.G.S., of Melbourne, received the approval for execution by the President of France and the French Government. The agreement between the Government and Mr. Lucas as architect for the remainder of his professional work has now been in hand for the past eight months.

Supply of Materials.

In a circular which has been issued to local and other authorities on the subject of "Contracts," the Secretary of the Ministry of Health states that "the Government wish to draw attention to the desirability of making use to the utmost extent practicable of goods and materials of home production. This is especially important at the present time when the Government is exploring every avenue and making every effort to assist in the reduction of unemployment. . . . . It has been laid down as a condition precedent to grants given because of unemployment that all materials which are required for assisted works shall so far as practicable be of United Kingdom origin and all manufactured articles shall be of United Kingdom manufacture, subject however to such exceptions as the Government Department or Committee concerned may find to be necessary or desirable in any particular case having regard to all the circumstances including the comparative prices of British and foreign articles. The desirability of applying the same principles in the case of all contracts entered into by local authorities, whether or not they are in respect of services which are aided by Exchequer grants, has previously been brought to the notice of local authorities and the Government wish me again to urge the importance of this policy . . . . and to request that when what is required cannot for one reason or another be supplied from home sources the possibility of satisfactory alternatives of home origin may be

Panel in Dome, the Holker Law Library, Gray's Inn.

Modelled by Mr. C. L. J. Doman. Sir Edwin Cooper, Architect.

A Chichester Misericord.

explored. . . . . Where there is no alternative to purchasing material from abroad, local authorities should keep in mind preference for goods and materials of Imperial origin . . . ."

Consultative Panels of Architects.

A CORRESPONDENT writes :— " In the correspondence now being published by the *Daily Telegraph* regarding the preservation of rural England, to which Mr. Stanley Baldwin, Mr. Lloyd George, Sir Reginald Blomfield, Mr. Guy Dawber, and many others have contributed, I am glad to see that a word has been said regarding the Consultative Panels of architects. These were, of course, set up by the Council for the Preservation of Rural England in consultation with the R.I.B.A., and with the sanction of the Ministry of Health. These voluntary advisory committees are available for local authorities, and others who wish to obtain advice, not only regarding the repair of old cottages, but for new buildings. It is indeed an act of self-sacrifice for busy architects to serve on these panels, but from what I hear far too little advantage is being taken of the free and experienced help now made available. I hope that Mr. Greenwood, when he introduces his long delayed housing legislation, after Parliament reassembles at the end of this month, will say a word of appreciation for these consultative panels which might easily be used to convert ugly blotches on the landscape into ' something harmless and even charming.' These are the words used by Professor Abercrombie in his notable defence of ' panels ' in his report on East Kent."

Decency in Advertising.

THE decision communicated to the Council for the Preservation of Rural England by the firm of Messrs. J. C. Eno, Ltd., that their advertising department has been directed that posters or outdoor signs are not to be placed where they would spoil, or tend to spoil, the beauty of their surroundings is a matter on which both this firm and the C.P.R.E. may be congratulated. It is yet a further step forward along the way to victory over rural disfigurement in as far as the Council is concerned. As for the firm in question, it is certain that this acknowledgment of the principle of decency in advertising will bring its merited reward.

Syon Park.

THE threatened acquisition of Syon Park, at Isleworth, for the purpose of establishing there a sewage disposal works, is as distasteful to us as, we suppose, it is to all who are acquainted with the beauties of what is without doubt one of the loveliest of the Thames reaches. Although the plan is only at its earliest stages, too many of London's show places have undergone mutilation not to point to the value of early protest. We trust that when the scheme is brought before the Middlesex County Council they will deal gently with an open space which is doubly unique, for its great heronry and its natural water meadows, which are probably the nearest to London existent.

The National Gallery.

ROOM VI and room XXX (the Mond room) of the National Gallery, which have been temporarily closed during their redecoration, have just been reopened to the public. The Mond room is occupied as before by the Mond Collection; while in Gallery VI have been placed the paintings by Gentile and Giovanni Bellini and by their contemporaries. The works of the earlier Venetian painters and of the schools of the Venetian mainland, which were formerly in room VI, are arranged with other works by the same masters in the Duveen Gallery, which was opened formally on January 9, and opened to the public on January 10. At the Italian Exhibition at Burlington House an exhibition of Italian works from the reference section of the gallery has been organised in room XXVIII.

English Cottages.

WHILE the architectural " plums " such as giant office blocks, factories, theatres and the like may be few and far between, there is one class of building, the small house, the demand for which remains constant. The current issue of *Architecture* will be of considerable value to architects for this very reason. The issue contains illustrations and plans of over twenty-five small to medium-sized houses.

Overdoor, the Holker Law Library, Gray's Inn.

Modelled by MR. C. L. J. DOMAN. SIR EDWIN COOPER, Architect.

Conkwell Grange, Wiltshire: Principal Entrance.

Mr. E. Guy Dawber, A.R.A., F.R.I.B.A., Architect.

ART AND THE COMMUNITY.—I.

WORDSWORTH'S VIEW OF THE AIMS OF ART.

By W. R. LETHABY.

At the beginning of a new year and another decade, perhaps I may be allowed to try to consider some of the more serious purposes of our art. It has long seemed to me that what is much needed in the present day is some groundwork of general ideas in regard to what we call "Architecture." Is it a serious human activity concerned with life, or is it something apart, and over and above—luxury, æsthetics, genius, taste? To try to get some basis of thought and leverage of example I propose briefly to examine Wordsworth's theory of art and poetry.

The general content of his poetry and his methods of expression are so well known that I must not presume to discuss them. It is not sufficiently recognised, however, that a general theory of the arts is implicit in the poems, and that principles are expressed quite plainly in his other writings which were intended to apply to all the arts practised by man.

Official scholastic teaching too much ignores the Wordsworthian, or human, view of art, taking for granted the validity of a bunch of pompous phrases for self-evident truths. As examples of such dangerous and misleading terms I may give "fine scale, good proportion, scholarly style, the grand manner, imposing composition, æsthetic purpose." All such as these lead to an assumption that "Architecture"—itself another of the misleading words—is what I may call grandiosity. The thought hardly realised, but always there, that architecture is oppressive arrogance, rhetorical ostentation and advertising extravagance—instead of sincerity, community-service, simplicity, humility—must be particularly betraying to the minds of young students. It works in perfectly also with our methods of training by means of exciting competitions for grand schemes in the air, and vast paper lay-outs. Thus we were led on in "my time" to suppose that grandiose compositions in certain "styles" were really this mysterious thing "Architecture." In our younger visionary days we are all likely to associate it with Moloch scale and Juggernaut splendours, and some—pathetic thought—may even die in this view of the beneficent art of building. By way of approach to what I want to get said I quote a sentence from a recent lecture on Wordsworth by Mr. Laurence Housman: "His use of simple diction, instead of the artificial verbiage previously associated with verse, opened the way for a new expression of poetry. Wordsworth's main principle was that what was ordinary was more significant than what was extraordinary. But he told us of the obvious and the ordinary in an incomparably new way." Substituting the word building for verse, that is just what I want to say. Art and poetry are not concerned with remote and ostentatious grandeurs, they are near everyone of us. Building is just like poetry, and, like it, has been betrayed by well-sounding words:

"But by the trade in classic niceties,
The dangerous craft of culling terms and phrase
From languages that want the living voice
To carry meaning to the natural heart;
To tell us what is passion, what is truth,
What reason, what simplicity and sense."
Prelude VI.

In all these human things Nature is the great exemplar . . . "for, having scanned—
"Not heedlessly, the laws, and watched the forms
Of Nature, in knowledge I possessed
A standard, often usefully applied,
Even unconsciously, to things removed
From a familiar sympathy. . . ."
Prelude VI.

The voice of natural human expression is not one scholastic manner or fashionable style, but it ranges—

". . . from Homer the great Thunderer
Down to the low and wren-like warblings made
For cottages and spinners at the wheel."

Nothing necessary or common is beyond the understanding and charity of true art.

"It is not wholly so to him who looks
In steadyness, who hath among least things
An under sense of greatness; sees the parts
As parts. . . .

Art and poetry are not truly matters of style and look. They should deal

"Not with the mean and vulgar works of man,
But with high objects and enduring things
With life and nature. . . ."

In the preface to *Lyrical Ballads*, 1798, Wordsworth wrote: "It is the honourable characteristic of poetry that its materials are to be found in every subject which can interest the human mind. . . . Readers accustomed to the gaudiness and inane phraseology of many modern writers will frequently have to struggle with feelings of strangeness and awkwardness. . . . It is desirable that such readers for their own sakes should not suffer the solitary word poetry, a word of very disputed meaning to stand in the way of their gratification, but they should ask themselves—is this a natural delineation of human passions and human incidents, and if the answer be favourable they should consent to be pleased, in spite of that most dreadful enemy of our pleasures, our pre-established codes of decision."

Wonderful, is it not? By changing a few words it all applies equally to other forms of art.

To fortify my reading of Wordsworth's mind I shall quote from two recent editors of his works. In the just published "Life" of the poet, Professor McLean Harper, commenting on such passages, says: "They distinguish universal art, which interprets the deep experiences common to mankind in terms commonly understood, from esoteric and decadent art, which is limited in its source, its medium, and its appeal. Yet so corrupted had the task of many readers of poetry become, that the fit audience was very few. . . . I doubt if it is not still and has not always been the case, that simplicity and realism shock before they please those persons who have received the sort of education that removes them in knowledge from the mass of their fellow men."

Our art assumptions, theories of taste, and all that, are diseases of a non-producing age; art must broaden out to the common or it must narrow and wither up.

"A parallelism in his [Wordsworth's] judgments upon the worlds of nature and of art is not without significance; for both in his eyes were ultimately referable to the same standard of beauty. Art could never succeed until it had learnt the lessons which nature had to teach, in so far as nature was to him as to Sir Thomas Browne, the art of God. He was never satisfied by a vague admiration founded upon caprice; his passion for what by instinct he knew to be beautiful was strengthened by his eager search for the grounds of its appeal to his emotions. Here the influence of Coleridge upon his thought is apparent; and the subject must often have been discussed by the two friends in the days of their closest intimacy. The conception of beauty as *Multeity in Unity*, put forward by Coleridge in his *Essay on the Fine Arts*, and of the sense of beauty as 'subsisting in the simultaneous intuition of the relation of parts each to each, and of all to the whole,' form the basis of much that is illuminating in Wordsworth's criticism of landscape." (Professor Ernest de Selincourt.)

In his "Guide through the District of the Lakes," after explaining the special characteristics of the scenery, Wordsworth passes to "describe, in general terms, in what manner it is indebted to the hand of man." He tells first of the modifications, arising from enclosure and agriculture, which has been wrought on the surface of the land and then deals with building.

"We will now take a view of the same agency—acting within narrower bounds for the production of the few works of art and accommodations of life which in so simple a state of society could be necessary. These are merely habitations of men and coverts for beasts, roads and bridges and places of worship. And to begin with the Cottages. The dwelling-houses, and contiguous out-houses, are, in many instances, of the colour of the native rock, out of which they have been built; but frequently the Dwelling or Fire-house, as it is ordinarily called, has been distinguished from the barn or byre by rough-cast and whitewash, which as the inhabitants are not hasty in renewing it, in a few years acquires, by the influence of weather, a tint at once sober and variegated. As these houses have been, from father to son, inhabited by persons engaged in the same occupations, yet necessarily with changes in their circumstances, they have received without incongruity additions and accommodations adapted to the needs of each successive occupant, who being for the most part proprietor, was at liberty to follow his own fancy: so that these humble dwellings remind the contemplative spectator of a production of Nature and may (using a strong expression) rather be said to have grown than to have been erected; to have risen by an instinct of their own, out of the native rock—so little is there in them of formality, such is their wildness and beauty. . . . The strong winds induced the inhabitants to furnish many of these dwellings with substantial porches. Nor will the singular beauty of the chimnies escape the eye of the attentive traveller. . . . These dwellings, mostly built of rough unhewn stone, are roofed with slates which were rudely taken from the quarry before the present art of splitting them was understood, and are, therefore, rough and uneven on their surface, so that both the coverings and sides of the houses have furnished places of rest for the seeds of lichens, mosses, ferns, and flowers. Hence buildings, which in their very form call to mind the processes of Nature do, thus clothed in part with a vegetable garb, appear to be received into the living principle of things, as it acts and exists among the woods and fields. . . . To the smallness of the several properties is owing the great number of bridges over the brooks and torrents, and the rudeness of the forms of some and their endless variety. . . . I must add that many of these structures are in themselves models of elegance, as if they had been formed upon principles of the most thoughtful architecture. It is to be regretted that these monuments of the skill of our ancestors, and that happy instinct by which consummate beauty are produced, are disappearing fast. (Note: written some time ago. The injury done since is more than could have been calculated upon. This is in the course of things; but why should the genius that directed the ancient architecture of these walls have deserted them?)"

"I have nothing further to notice except the *Places of Worship*, which have mostly a little school-house adjoining. The architecture of these churches and chapels, where they have not been recently rebuilt or modernised, is of a style not less appropriate and admirable than that of the dwelling-houses and other structures. How sacred the spirit by which our forefathers were directed! The *religio loci* is nowhere violated by these unstinted, yet unpretending, works of human hands. . . . A man must be very insensible who would not be touched with pleasure at the sight of the chapel of Buttermere, so strikingly expressing, by its diminutive size;

how small must be the congregation there assembled, as it were, like one family."

He then considers "the disfigurement which this country has undergone . . . that has chiefly shown itself in its effect upon buildings. I mean a warping of the natural mind occasioned by a consciousness that the country being an object of general admiration, every new house would be looked at and commented on, either for approbation or censure. Hence all the deformity and ungracefulness that ever pursue the steps of constraint or affectation. Persons who in Leicestershire or Northamptonshire would probably have built a modest dwelling like those of their sensible neighbours have been turned out of their course; and, acting a part, no wonder if, having had little experience, they act ill. . . . The rule is simple; with respect to grounds—work, where you can, in the spirit of Nature, with an invisible hand of art. Planting, and the removal of wood, may thus, and thus only, be carried on with good effect; and the like may be said of building, if Antiquity, who may be styled the co-partner and sister of Nature, be not denied the respect to which she is entitled." He protests against "the craving for prospect which is immoderate, particularly in new settlers," and the desire "to translate into the cold and stormy North the elegancies of a villa formed upon a model taken from countries with a milder climate."

"Puny efforts of elegance appear contemptible, when in such situations they are obtruded in rivalry with the sublimities of Nature. . . . In an undulating or flat country a gentleman's mansion may, with propriety, become a principal feature in the landscape. . . . The principle that ought to determine the position, apparent size, and architecture of a house, viz., that it should be so constructed, and (if large) much of it hidden, as to admit of its being gently incorporated into the scenery of Nature—should also determine its colour. Sir Joshua Reynolds used to say: 'If you would fix upon the best colour for your house, see what is the colour of the soil, and let that be your choice.' Of course, this precept could not have been intended to be taken literally. The rule, however, as a general guide, is good: The colour of the house ought to have a cast or shade of the colour of the soil. The principle is that the house must harmonise with the surrounding landscape. . . . That white should be a favourite colour for rural residences is natural for many reasons. The mere aspect of cleanliness and neatness thus given produces moral associations so powerful that, in many minds, they take place of all others. . . . The objections to white in large spots or masses in the landscape, especially in mountainous country, are insurmountable. Five or six white houses scattered over a valley, by their obtrusiveness, dot the surface and divide it into mathematical figures, disturbing that repose which might otherwise be perfect. . . . Upon the whole, the safest colour for general use is something between a cream and a dust colour, commonly called stone colour. It is best that the colouring material should be mixed with the rough-cast, and not laid on as a wash afterwards."

"Houses or mansions suited to a mountainous region should be not obvious, not obtrusive, but retired; and the reasons for this rule, though they have been little adverted to, are evident. Mountainous countries, more frequently and forcibly than others, remind us of the power of the elements, and accordingly make the idea of exposure very unpleasing. . . . The feeling of simplicity habitually connected with mountain retirements, prompt us to turn from ostentation as a thing there eminently unnatural and out of place. A mansion, amid such scenes, can never have sufficient dignity or interest to become graceful in the landscape. . . . And the puny efforts of elegance appear contemptible when, in such situations, they are obtruded in rivalry with the sublimities of Nature." Professor de Selincourt, in his introduction to the *Guide*, points out that: "Wordsworth himself considered that there were three callings for which nature had endowed him with qualifications—those of poet, landscape-gardener, and critic of pictures and works of art. His own fundamental principle—that where the traces of man's presence are unavoidable the invisible hand of art should everywhere work in the spirit of Nature and Antiquity, her sisters and co-partners—is fully developed in the *Guide*."

In a series of letters written to Sir George and Lady Beaumont, of Coleorton, Leicestershire, about 1805-10, he dealt very fully with a general philosophy of the arts, and particularly with architecture and landscape gardening. Sir George was building largely, and had sought Wordsworth's advice. Some of these letters were published with the title: *Of Building and Gardening and Laying Out of Grounds*, 1805.

"I do not suppose that any man ever built a house without finding in the progress of it obstacles that were unforeseen, and something that might have been better planned; things teasing and vexatious when they come, however the mind may have been made up at the outset to a general expectation of the kind. With respect to the grounds, you have there the advantage of being in good hands, namely, those of Nature. . . . Setting out from the distinction made by Coleridge which you mentioned, that your house will belong to the country, and not the country be an appendage to your house, you cannot be wrong. Indeed, in the present state of society, I see nothing interesting either to the imagination or the heart, and, of course, nothing which true taste can approve, in any interference with Nature grounded upon any other principle. . . . From numberless causes the state of society is so much altered that nothing of that lofty or imposing interest, formerly attached to large property in land, can now exist, none of the poetic pride and pomp, and circumstance; nor anything that can be considered as making amends for violation done to the holiness of Nature."

"If I were disposed to write a sermon upon the subject of taste in natural beauty . . . all that I had to say would begin and end in the human heart, as under the direction of Divine Nature, conferring value on the objects of the senses and pointing out what is valuable in them."

"No liberal art aims merely at the gratification of an individual or a class: the painter or poet [or architect, may be added] is degraded in proportion as he does so; the true servant of the Arts pays homage to the human kind as impersonated in unwarped and enlighted minds."

Again, he says in another edition of the *Guide*: "This beautiful country has, in a great variety of instances, suffered from the spirit of tasteless and capricious innovations. No one can travel through the more frequented tracts without finding at almost every turn the venerable and pure simplicity of nature vitiated by some act of inconsiderate and impertinent art; without being offended by an introduction of discordant objects, disturbing everywhere the peaceful harmony of form and colour."

He concludes with a reference to the changes brought about by the age of machine industry and the abolition of home crafts.

"The author has been induced to speak thus by a wish to preserve the native beauty of this delightful district because still further changes must inevitably follow from the change of inhabitants and owners which is taking place."

All this is very prophetic and instructive; I would like to go all over it again, picking out phrases like "inconsiderate and impertinent art," and pointing out how the criticism of poetry answers building questions. Art or Poetry, in any full and real sense, is only to be drawn from deep wells of the human spirit; all recipes for obtaining a "look" of art without its answering to some noble spirit in the community only stand in the way.

Professor Harper, commenting on this correspondence, remarks: "Would that all builders, in the century of ostentatious extravagance which has intervened between that day and ours, had obeyed this canon of taste. With Wordsworth the building of a house was a sacred rite. He held a sublime theory, based on reverence for nature, on close observance of her laws, and on a due regard for man's place in the universe." In "a wonderful *Defence of Poetry* (1815) he wishes there were a better word than 'Taste,' originally signifying only a passive receiving of impressions, whereas there is something active, aggressive and dynamic in that function of the mind when properly exerted. 'Every Author, as far as he is great and at the same time *original*, has had the task of *creating* the taste by which he is to be enjoyed . . . to call forth and communicate *power*. Of genius, the only proof is the act of doing well what is worthy to be done, and what was never done before; of genius, in the fine arts, the only infallible sign is the widening of the sphere of human sensibility, for the delight, honour, and benefit of human nature.'"

. . . . . .

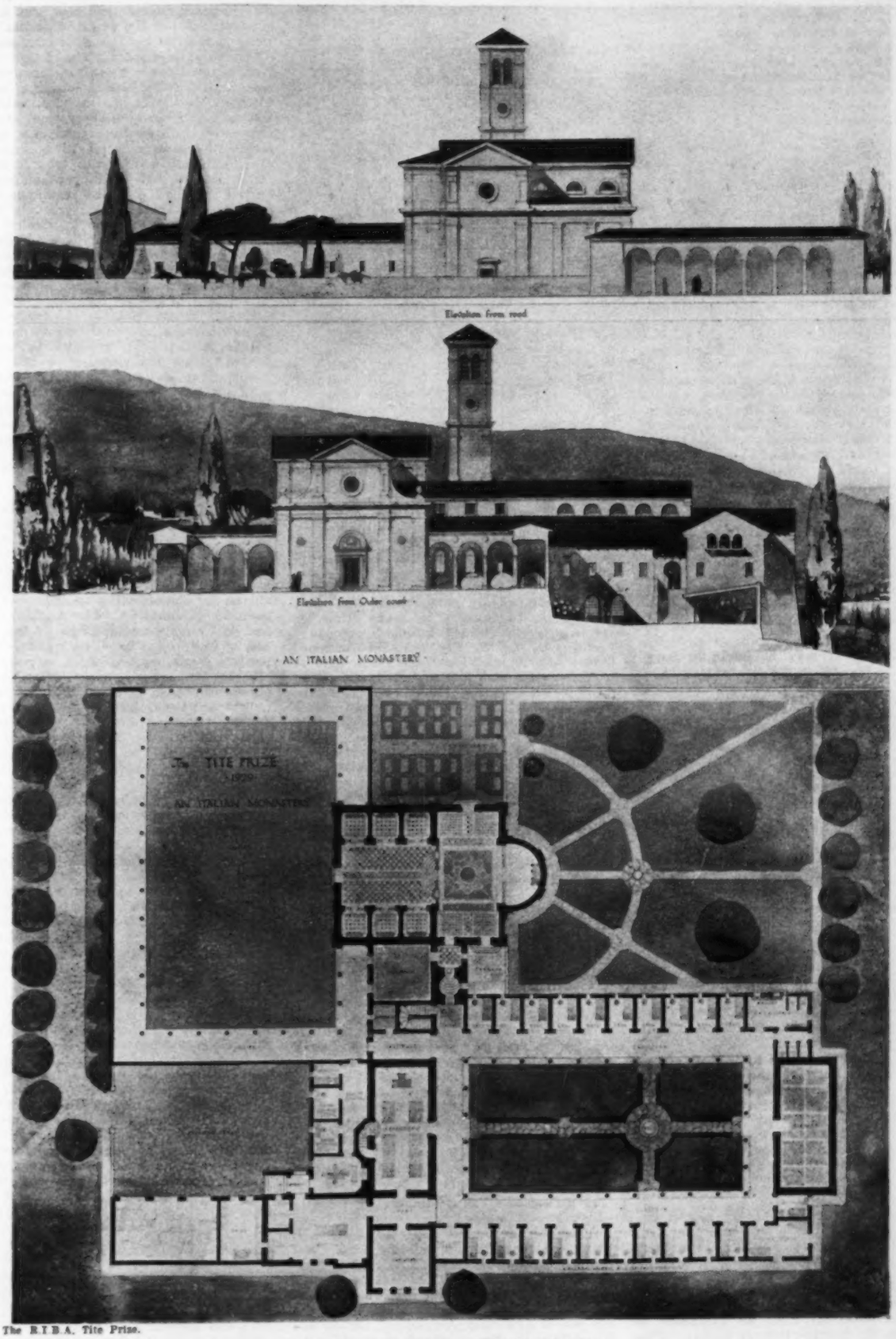
Our own attitude to this teaching of Wordsworth is possibly that "it is just poetry," and, like most things, has no real meaning. In any case, how can such a scheme of thought be applied at the present time—the period of the Architecture of Finance and Advertisement in the great ostentation styles? The terrifying buildings of our cities, erected for Hollywood films and such like purposes, are so different from the rock-built cottages and village churches of Wordsworthian thought that we may well inquire. Still, if the mind and spirit were aroused they would find a way of working out to some expression. Why, for instance, should we add to the burden of Babel by loading our big, bullying buildings with dead and repulsive "ornaments," when we might save the money thus expended for reasonable and refreshing human works? There is always some margin for choice, and the vaster the erections, the larger the margins. Even £100, spent in soot-trap dentils and "eggs and tongues," would provide twenty little water-colours to be hung in a row around the "Directors' Board Room," where they might cheer the charwoman's heart.

Again, our buildings are even yet not all like the Babylon of Belshazzar's Feast. There are some in between, which might be modest and pleasant and human.

In these matters the mind is behind all, and the thing most necessary to us is to get some understandable *common* basis for our ambitions. This, I suggest, should be an anxious endeavour to improve our ordinary building customs, an aim which builders, foremen, and even the labourers, would understand and help forward. Executant artists do not understand "style."

Chester Newgate Scheme.

The proposed provision of a new archway in the Chester city walls at the Newgate in order to meet modern traffic requirements was discussed on December 30 at a meeting of the Chester Town Council. A design by Mr. Walter Tapper was before the Council, together with a recommendation of the Improvement Committee, that the design be not adopted. It is understood that objection was mainly on the ground of cost, which was estimated at £7,000. Alderman Green proposed that the scheme be referred back to the committee to go fully into the question of cost and consult the Ministry of Transport and the Office of Works as to what grant might be expected. Any alteration of the city walls, he said, was a national concern. Mr. Tapper had vision, and they must have vision. Letters were read from the Chester and District Chamber of Trade and the Chester Archæological Society approving Mr. Tapper's scheme.



The R.I.B.A. Tite Prize.

An Italian Monastery: Winning Design.

By Mr A. C. Collins.

POETRY IN BUILDING

By A. EDGAR BERESFORD.

In a foreword to Mr. Basil Oliver's delightful book, "The Cottages of England," Mr. Baldwin, our ex-Premier, quotes William Morris as having claimed to "stain wall-papers with poetry," and adds: "No one can say that we have stained buildings with poetry for the last two or three generations. We have stained them with prose, and pretty bad prose at that."

Most of us must agree that the very great majority of modern building is as dull as ditch-water. We pride ourselves on the way in which we nowadays cut out all useless fripperies, and design on only the most direct and efficient lines. "Fitness for purpose" is now the universal slogan, and utility and simplicity almost the only goal. We are in grave danger of carrying this principle too far, and considering it not merely as an ingredient—and a most admirable one it is—but as the whole cake. There may be surely all the difference in the world between restraint and studied simplicity on the one hand and the barren aridity of utilitarianism on the other; and surely it is possible to spare a little thought and a little money for something besides the bare practicalities of life. Justice, integrity, industry are all most admirable traits in a man's character, but unless they are blended and sweetened by a sense of humour, a touch of romance—even of sentiment—and a human fallibility, the individual is apt to the terribly prosy and dull. And the same applies equally to our buildings. They may be as sound as a bell from all constructional standpoints, admirably adapted for their purpose in the scheme of things, but dull and lifeless in the extreme, unless we can contrive to introduce some little vital touches of romance, some spark of poetry, some little human note.

Poetry in buildings is difficult to define or segregate. It may be found in many different forms and in widely varying types of buildings. King's College Chapel at Cambridge, for instance, and some of our great cathedrals, are frequently referred to as "poems in stone"; but their art is that of the great epic, lofty and magnificent; the effect of beauty is somewhat overshadowed in our minds by the wonder and awe inspired by the marvels of the constructional conception. But when we speak of poetry in buildings, we visualise, rather, the beauty of an old thatched cottage in a Devonshire combe, half-buried in its luxuriant background; or of a group of mellow lichened roofs round a Cotswold street, all grey and cool; or of a Sussex hillside village, with projecting grey half-timber or mellow tile-hung gables overshadowing the narrow winding lane; of some lonely little church, with its shingled spire and oaken screens; or, maybe, a cosy little close of almshouses, simple and peaceful. That is the real lyrical poetry in building, full of charm and intimate interest—something not "too bright and good for human nature's daily food."

Is it possible nowadays to rediscover the lost secrets? Let us take away all the glamour and romance of age, shut our eyes to the mellowing of Nature through the years, and we must be convinced that, even when they were brand-new, such buildings were beautiful, which is the last thing that we can say about our modern efforts. Where, then, is the fault in our work to-day?

First and foremost is the tyranny of the straight-edge and the plumb-bob, the steel rule and the square. Such things were once a workman's tools, to use or not, as he pleased; now they are his master, his inspiration. The inflexible frozen exactitude of the mathematician should have no place in simple building. Just as humanity is imperfect, so imperfection is human. The irregular—almost casual—lines and angles of an old house, a little slip in the bonding of the bricks, an unequal camber in a beam, a wavy uneven line of a string-course or eaves line, all help to make it human and beautiful. We are sometimes told that to copy such imperfections in our new work is mere decadent imitation, a manufacture of spurious antiques: that the old builder made his lines crooked because he was not sufficiently skilful to make them straight. Is it not possible that he had a better scale of values than we, and refused to waste his time in "making the crooked straight and the rough places plain" when such a procedure would be of no practical use? Compare the old and the new way of procuring an oak beam to span an opening. The old builder would select a felled log of suitable size; if it had a good camber, so much the better; it would thus compensate for any deflection, built in the right way up; and a few hours' work with the adze made the face and the edge roughly square and presentable. Nowadays, for some reason, all timber has to be (in the merchants' phrase) "converted," sawn into die-square logs, heedless of any natural curve in the grain, which results either in the discarding of all but straight-grained timber for weight-carrying, or, alternatively, in a lack of strength owing to the natural fibres being cut through. After being planed and squared, it is frequently faked up by having a false camber cut in it, again cutting into the grain-strength, and eventually perhaps "adze-finished," which apparently means cutting little scaly hollows all over it—an effect only comparable to the machine-stamped "repoussé" copper ash-trays sold by the sixpenny stores. Is not the old method sane and economical by comparison with that of to-day? In this, as in many other respects, to copy the old builders' procedure would seem to be the soundest commonsense; but it must be made clear that it is the *method* and not merely the finished *effect* which should be copied, and the degree to which finish is carried need not in most instances exceed that of the old people, even if nowadays we can easily do so. If we could only get rid of the eternal obsession that there is any virtue at all in straight lines and square angles in simple building we could hope at once for a new vitality and human interest in the appearance of our buildings.

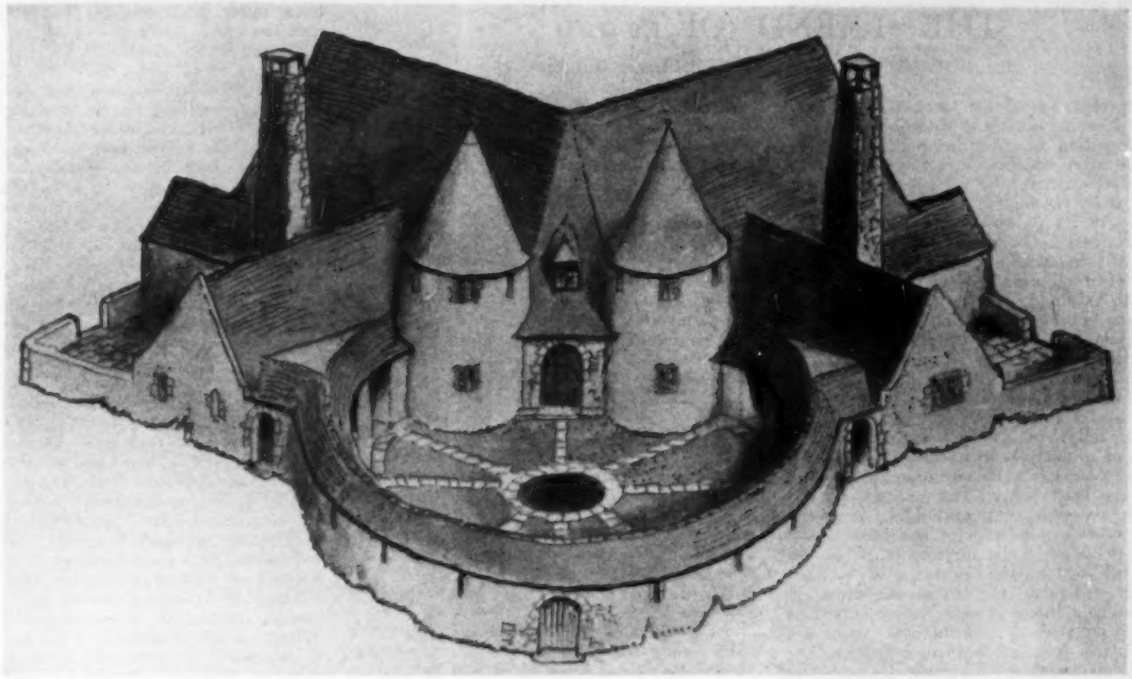
Modern building practice organised on purely commercial lines must be essentially prose. The architect on the one hand is overshadowed from the beginning of his career by the inexorable rigidity of his tee-square and scale-rule; the building workman by the false standards of machine-made straightness and perfection. What might be the link between the two—the architect's specification—a potential help and inspiration to the workman, has become a carefully worded legal document, defining, as strictly as it can be made to do, the most and the least which shall be performed for the agreed amount of money to be paid. And this sum, frequently, has been determined not so much on the merits of the work which has to be done as by the keenness of the competition between the various contractors who have been invited to enter the lists—a most unfair situation, but not, unfortunately, a rare one. What chance is there of achieving the best in building?

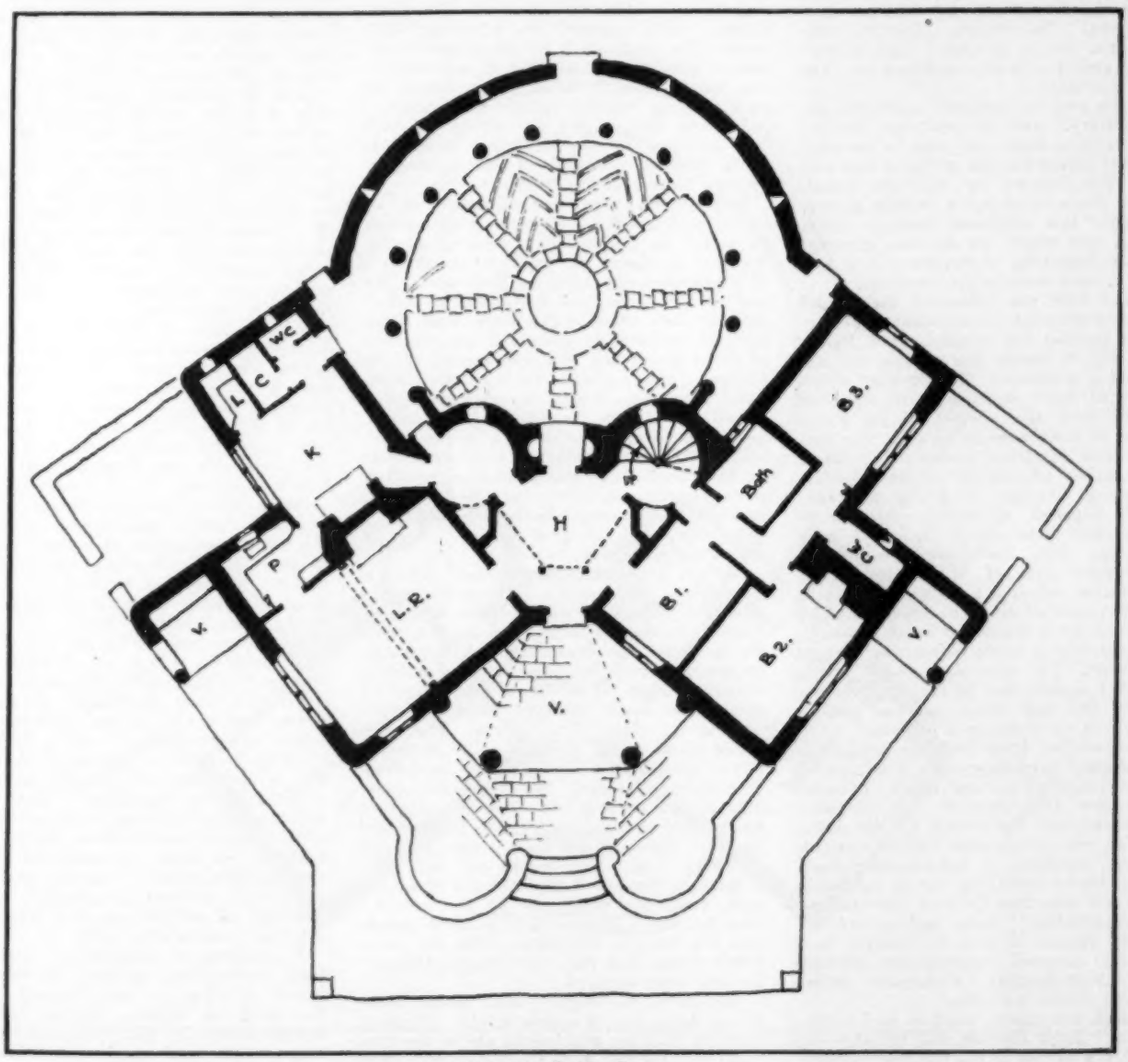
If we consider, as a contrast, the way in which an old cottage was frequently built, we may begin to see how the human and living quality of such a building arose. Not many years ago there still lived in a Warwickshire village a very old lady who could describe how her cottage was built many years previously. She remembered how, when she was a tiny child, her father, having lost his cottage by fire, prepared to rebuild. All the neighbours rallied round; one brought stone from the adjacent quarry, others carted and framed the local oak, others plastered the walls and thatched the roof; the materials being principally obtained by barter. No architect drew a plan, no district surveyor existed to approve or condemn, no contractor gave a tender or sent in a bill of variations, but the whole work was carried out and finished by this little commonwealth of friendly neighbours. The design evolved itself out of their hereditary instincts and local traditions of sound building, and the cottage still stands, a delightful example of simple harmonious country craftsmanship, frequently painted by artists and carefully measured—as an example to be copied—by architects. Now the man who built those walls did not stop working at a fixed hour or when he had built the maximum amount fixed by his trade union; his only thought and object was to raise as quickly as he could a strong wall to shelter his unfortunate neighbour; he worked with his heart as well as with his hands. The man who made the doorway found time to carve a little moulding on the arch—not because it was necessary but just to show that he enjoyed doing it; not because he would thereby be entitled to charge a few shillings more than if he left it plain, but because he felt that it would look prettier. That all happened a good many years ago now, and such things are not heard of in these days; our existence has become so highly commercialised that such a literal example of a helping hand sounds to us like a romance. But one can quite believe that poetry was achieved in that old cottage!

It is of little use, however, to fulminate against modern building practice, which is here for good or ill, whether we like it or not. Nor is it very helpful to curse the ever-increasing use of machine-produced materials, though that has well-nigh killed all the old characteristic traditions of craftsmanship in building. The machine is here and will remain and increase as long as the cost of building is based on a system of competitive tendering and work is given generally to the lowest bidder. But there are possibilities even with the present system by improving the relations between architect and builder and workman, who must, all three, pull together in harmony and friendship if we are to have any prospect of achieving this elusive quality of poetry in building. Generally, the best we can do is to provide congenial soil and environment, for it frequently grows, as by accident, as a by-product. We cannot too often remind ourselves that no good or artistic work is ever done by a discontented or dissatisfied workman; the doing must be enjoyed by the doer. Too often architect and builder regard each other as natural foes, always suspicious and distrustful. Too often the workman is regarded by his master as merely a money-making machine, and by the architect as a stupid and unintelligent bungler. Is it not possible that the lack of initiation or intelligence of which we complain in the modern workman is the result of a lack of opportunity, and that if he were taken more into the confidence of architect and builder, and his opinion and advice more often sought and considered, he would bring to his work more interest and consequently do it better? A little give and take on all sides will often knit together in a friendly co-partnership all sections concerned in the erection of a building, and out of the mutual good feeling thus engendered, quite as much as from any special tricks of design, there well may come something at least akin to that lost art.

Index.

In this week's issue, "General News" and "Competition News" will be found on page 129. Notes on "Illustrations" appears on pages 130-132, and the account of the proceedings at the R.I.B.A. on Monday, together with the Deed of Award of Prizes and Scholarships, is printed on page 127.





GROUND-FLOOR PLAN.

Proposed Seaside Cottage at Angmering, Sussex.

MESSRS. BAILLIE SCOTT AND BERESFORD, Architects.

THE TREND OF 1929

By HOWARD ROBERTSON, F.R.I.B.A., S.A.D.G.

The prosperity of the architectural profession depends upon the demands for, and the recognition of, the architect's services. It is the latter which creates the former. To achieve recognition, the architect must first deserve it by the quality of his work and the efficiency of its execution. But this is not enough. He must, in addition, create in the public a standard of education which will permit of intelligent appreciation; he must adopt, to this end, every means available in a modern world of intense competition in propaganda and its agent, publicity. And, in addition, he must watch carefully, in the interests of self-preservation, all these social and political movements which may endanger his livelihood and well-being.

Superficially, in as far as volume and quality of architectural work are concerned, the past year has been encouraging. Architects have been busy. The standard of design is everywhere improving. And the reward of this improvement has been immediately reflected in the increase of public interest, of which the Press is a reliable indicator. To-day the Press discovers in architecture a theme of news value. Columns of space devoted to architectural topics are not allotted from philanthropic motives, or through an amiable willingness to advertise the profession free of charge, for the Press is peculiarly sensitive to attempts at free advertisement. To receive publicity, the matter must be of interest; and to-day, through united effort, architecture has achieved this state.

Below the surface, however, conditions are less satisfactory. And the past year, like the next few years to come, may later be recorded as a crucial period for the status of the profession. The reasons for this are social-political. There is to-day a certain general trend under this combined heading which affects us, and which we are not ignoring. But, at the beginning of the year, it is well to bring it once more to the forefront.

The year 1929 has witnessed the second advent of a Socialist Government. Politically, this signifies the triumph of a Party. But socially, it marks the growth and expression of a movement, of tendencies which emerge with fresh strength from the War cataclysm, itself the product of the social conditions of the preceding decade. The tendencies which affect our profession are those which manifest themselves in sporadic but never-ceasing attempts to group and centralise, to suppress individual enterprise in favour of mass undertakings, to absorb mass undertakings into Government enterprise. The ultimate end of this evolution is nationalisation, which is a system of intensive and close centralisation. The Roman Empire was marked by a developed central control, and the reaction of mediævalism was towards individualism. The cycle may, probably will, be repeated again. But to-day we have not completed the first stage, so the possible reaction is of no momentary concern.

In business we have had big amalgamations, mergers, huge enterprises like Imperial Chemical Industries; then, again, concerns such as the Anglo-Persian Oil Company, with Government somewhere at the helm. To-day we see Government looking towards the great combine of tube-omnibus-tram, with the idea of smoothing out its individual interests and sometime rivalries into one vast simple organisation "under public control." Whatever phrase is used to describe such action, its essential characteristic emerges starkly. Centralisation, Government control, elimination of the individual.

That such movements react on architecture is evident. Each business and industry carries with it a section of the building industry, on which architects depend. A widespread series of amalgamations will affect the individual architect. At first but little; later, perhaps, enormously.

Already the wedge is entering, eased by the soothing anæsthetic of Lord Londonderry's carefully worded paper read at the Architecture Club. Superficially convincing, technically guiltless of *suppressio veri* or *suggestio falsi*, this speech contained, in mellifluous phrases, the hint of an ultimate death sentence for our profession. It presaged the elimination of the private architects for all large public work, the death of public competition, and the slow but sure growth of a huge department of official architecture, which, like big business, would absorb into itself the talent of the private practitioner after first putting him out of business. Proof of the existence of this growth exists, its menace is already felt. Two major cases are to hand, at the end of the year. The new Whitehall scheme, in which the Office of Works appears to remove from Mr. Vincent Harris opportunities which the War postponed; and the new building on the Calton Gaol site in Edinburgh, which the official architectural department will carry through in spite of the protests of the R.I.B.A. and the Scottish architects and societies.

It is of little use to complain idly; the official architect is merely one of many symptoms. But the nature of architecture, with its combination of art, science and business, suggests that even now there may be widespread public support for a strong fight against the confiscation by officialdom of the private architect's fresh field of opportunity, and the R.I.B.A. is to be congratulated on its increasing reaction against the menace.

A lesser danger, but one which will still bear watching, is manifested in a recent tendency to extol the work of the engineer as opposed to that of the architect.

Surprisingly, over the signature of an architect A.R.I.B.A., appeared in December an article in the *Observer* rejoicing at the decision to employ an engineer as architect of a proposed new hotel in Park-lane. The aim of the writer was to praise, in perfect sincerity, any effort to encourage clean structural architecture as opposed to the tradition of fancy dress; and this was appreciated by at least one confrère, as a commendatory letter from Mr. Voysey to the same paper showed. But how dangerous, how open to misinterpretation, was such a public utterance! The average engineer is no more fitted for the complex business of architecture than is the average architect for the specialised career of engineering. Each is dependent on the other, and no good can be done by attempted usurpation.

But the situation requires action. There is too great a tendency for the question to be asked: "What does the architect do for his money, since he is helped by the engineer, the specialist, the decorator?" The question implies ignorance, but requires to be publicly answered, since it is apt to be quoted by those who would willingly substitute their services for those of architects. The reply would entail public explanation of the architect's complicated duties, the legal preliminaries to building, the conception of the scheme, the working out of it, the selection and control of collaborators, the business and financial aspect of this most complicated and worrying task. One might as well ask: "What is the use of the manager of a business, since the employees do the work?" No; let the engineers look to their beams, and not concern themselves with the architect's mote, lest the "mechanical fallacy" be once more exposed.

Architects, to improve their status, have to rid themselves of certain incubi. Of these, obsolete building regulations are in the forefront, and the past year does not seem to show much progress towards a modern and uniform code. But an important private committee of inquiry into the state of architecture and building practice, with R.I.B.A. representatives upon it, is making headway on this question and more far-reaching questions still; and in the meantime, the R.I.B.A., the Surveyors' Institution and the Institute of Builders, have made a combined move towards expediting building by the drafting of a new and organised form of specification, which, if adopted, may reduce both time and labour.

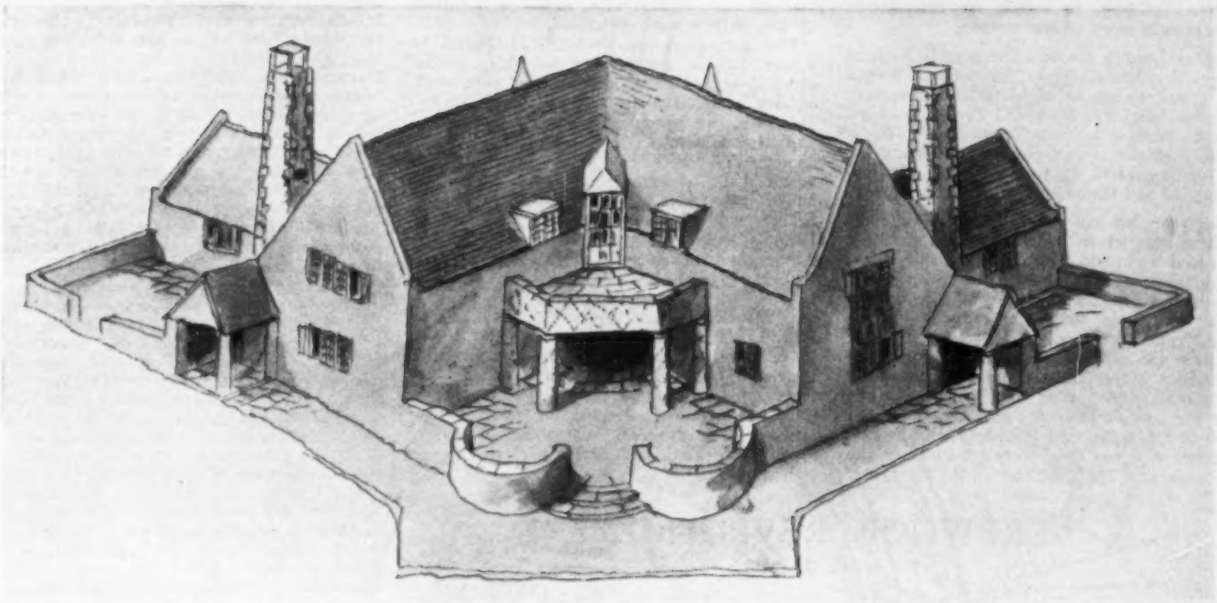
Characteristic of the past year has been the increased interest in town planning, an immediate problem being the solution to traffic congestion and some system for preventing a recurrence of the subterranean disasters which closed a whole section of Holborn and brought ruin to many. Correlation of public transport services is a first step towards the former, but at the same time is required the formation of a far-reaching policy in city planning. Lt.-Col. J. T. C. Moore-Brabazon, M.P., has foreshadowed this in a Press article, and foresees the ultimate construction of overhead relief roads, beginning with high-level roads above the railway tracks to the London termini, and a further development of high-level cross-roads to avoid the terrible problem of street intersection; while other authorities have made suggestions on quite opposite lines. In the meantime, as a contribution, we have so far arrived only at an unpopular solution to the problem of Charing Cross bridge, apparently almost unrelated to contemplation of the London traffic problem as a whole. But there is academic consolation in the fact that Angora, the new Turkish capital, is to be completely and comprehensively town-planned as a whole urban conception by a German specialist, Professor Jansen! European capitals are not to be a model for Angora, but Angora for Europe.

That the public is interested in town planning is shown by the prominence given to reports of the papers read by Mr. Thomas Adams and Mr. Downer at the R.I.B.A. on the planning of greater New York. Mr. Lansbury's popular schemes for London also occupy much space; but we do not hear much of consultation over these proposals by the Government with the large body of competent architectural opinion which is available in the profession, and which, surely, should be represented.

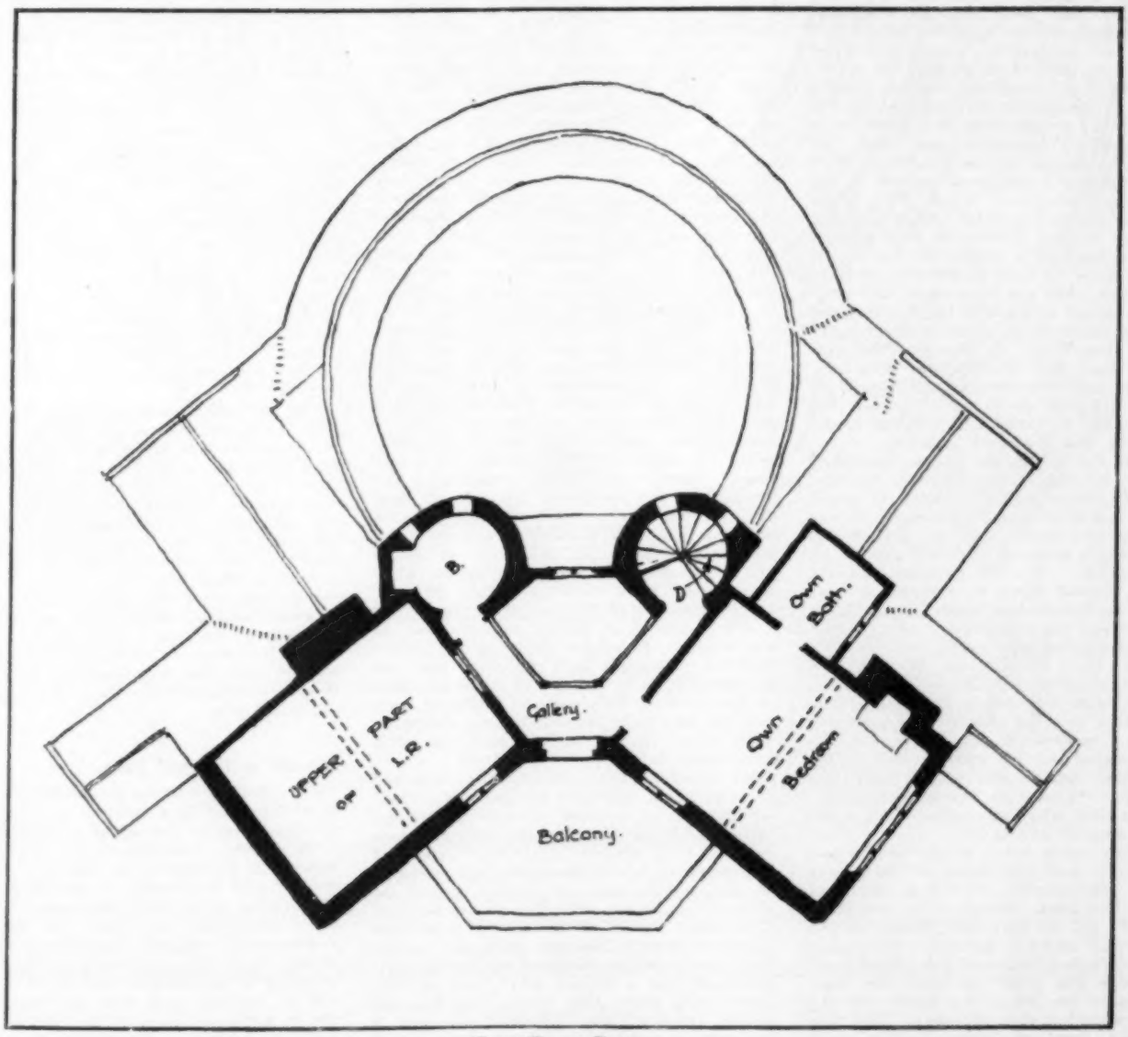
In the field of individual architectural achievement there has been much of interest during the past year. The standard of design is everywhere improving, in buildings large and small, and there are some notable results to record. In the City, the Commercial Union Building* of Sir Aston Webb & Son, classic in the flavour of its detail, is free and spirited in its composition. It is a design which combines dignity with lightness and vitality, and is rare in expressing the honest conception of a steel framework. It does this by avoiding the piling up of massive reveals and thicknesses, with their false suggestion of solid masonry. Lloyds Bank, the Midland Bank, are dignified and characteristic, each in the flavour of their designers, but to the development of a fine yet practical modernism make little contribution. They emphasise the power of money first of all, and the emphasis is somewhat overwhelming. The Underground building, by Messrs. Adams, Holden & Pearson, is clean and fine, though hampered by a difficult site formation. The sculpture which adorns it, forms a subject of controversial interest which draws attention to the building, yet lacks real adequacy of setting, and the elimination of certain sections of it would have assisted the ensemble. The real marriage of architecture and sculpture has not been celebrated in 1929.

A building of simplicity, consistent, of high architectonic quality, is the London School of Hygiene and Tropical Medicine, the work of Messrs. Morley Horder and Verner Rees. Its plan is a model of clarity, organisation, and good proportion. Of a different order, light, modish, charming, but essentially an individualistic building, is Ideal House, in Argyll-place, by Messrs.

* Illustrated in this issue.—Ed.



ENTRANCE FRONT.



FIRST-FLOOR PLAN.

Proposed Seaside Cottage at Angmering, Sussex.

MESSRS. BAILLIE SCOTT AND BERESFORD, Architects.

Raymond Hood and Gordon Jeeves. Its black and gold is a fine advertisement; but such a building, to retain its fascination, must remain more or less unique.

Out of London are two fine works, Kelham Chapel, by Mr. Charles Thompson, a simple and grand structure of brick and concrete; and the delightful Windmill Press, by Lord Gerald Wellesley and Trenwith Wills, a building elegant and urbane, cosmopolitan in its distinguished manners, yet English enough to feel thoroughly at home in Surrey.

The year has not been devoid of interest in those side issues which save the architect from too complete absorption in his task. Regrettable, short-sighted, yet comprehensible in our present state of public enlightenment, has been the controversy over the Haig Memorial, the only bright spot in which has been the measure of support accorded to the artists in certain distinguished quarters. Regrettable, too, even for architects, has been the loss to sculpture occasioned by the death of Emile Antoine Bourdelle, the French sculptor, who has done so much to show the way towards an architectural sculpture. Here, again, is a small consolation; for posthumous recognition will probably be immediate and considerable, and the influence of Bourdelle's work extended.

The award of the Royal Gold Medal to Victor Laloux shows that in 1929, amidst growing achievement on every side, the work of an educationalist and designer distinguished in his epoch is still to be recognised, and the Institute has been happy in its choice. The gestures of an award to the architect of a foreign country is always a happy one. And so, too, is another gesture, in recording which we close this review of 1929. That is the visit of the Architectural Association, eleven years after the Armistice, to Germany; the first really public confirmation of the fact that, amongst artists, enmities cannot live for ever. Let us hope that, as Mr. Guy Dawber suggested, it will be possible to arrange for Mr. E. R. Jarrett to read at the Institute the unusually interesting and stimulating paper in which, at the Architectural Association, he demonstrated the progress of modern German architecture and its possible bearing on our own development.

EREWHON REVISITED.

By JOHN ANGUS.

In Erewhen, I was told, they were going through an extraordinary period in all matters concerning art. Nothing seemed to go right with them. Several hundred years before they had gone through a similar period, when the noblest arts, having reached a height of perfection, began to decline. There was no method of getting rid of the dead works of art, and the problem became serious. At length the evil reached such a pitch that the people rose, and with indiscriminate fury, destroyed good and bad alike. For a couple of hundred years or so not a statue was made from one end of the kingdom to the other. When they began again the artists thought things out for themselves, so that in three or four generations they reached a perfection hardly, if at all, inferior to that of several hundred years earlier. Art was born anew, and grew up from infancy as a new thing working out its own salvation from effort to effort in all fear and trembling. It was evident, so I gathered, that the Erewhonians five hundred years before understood nothing of all this, nor did they do so now. To-day, the same evils had recurred, and a second iconoclastic fury was predicted by many.

Some of the prevailing phases described by my informant were very curious. Apparently, there was no unanimity about anything concerning art, although it was difficult to tell whether all the artists and all the people were in separate groups on opposite sides. If, for instance, an old building showed signs of collapse or was likely to be demolished to make way for a new building, there was an outcry often headed by elderly architects held in high repute for their own works. Whether the younger architects in their hearts were in agreement with this policy it is difficult to say; wisdom dictated that it was better to maintain a reverential attitude, even if the dead appeared to be stifling the living. Nevertheless, behind the whole thing was the feeling—irksome to many architects—that no matter what was replaced, it could never be so good as the old.

For many years not a single bridge had been rebuilt—although many of them were hopelessly inadequate—without a storm of protest. Everyone seemed to be convinced they would get an ugly new bridge, so the old one must be kept, patched up, or some form of compromise arranged. Every old tittle bridge was preserved until the number of deaths reached such a figure that the objectors were forced to give way. That they were often right in their objections was admitted by my informant; some hideous new bridges were replacing the old ones. It is most curious to relate that a few of the Erewhonians believed they had amongst them the ability and the brains to equal, if not surpass, their old treasures, yet in some curious way the proper people never got commissioned for the work. I confess I was unable to follow the curious ways described to me.

At the time I was there the country was infested by a plague of ugly, cheap buildings, mostly of small dimensions. Following a new custom, they were built on plots of land bigger than was usual, with the result that the countryside was being eaten up at an alarming rate. Indeed, so alarming was the march of ugliness that active steps had been taken to preserve parts of the country in its natural state. Soon, it was expected, there would be neither town nor country, but a huge suburban area with a portion of the country fenced and protected to save it from destruction. Again, it was observed that in this problem, as in many others, there was the same tendency to flee from ugliness rather than make any attempt to deal with the causes. Ugliness seemed to be inevitable. On my part I maintained that a nation conscious of ugliness was a long way on the road towards finding some remedy. Unfortunately, there being no unanimity concerning the direct causes, there could be none concerning the remedies. For instance, to some it was obvious that the prevailing high costs of building had driven many people to cheap and nasty expedients; to others, cheapness and nastiness were not synonymous. They maintained that economy might produce results pleasing to the eye, or, in fact, that a new standard of beauty might arise. It was evident, therefore, that the borderline between cheapness and ugliness was not explored; in fact, it was not made too clear to me whether high costs of building were not the excuse to regard houses, compared with other things, as of relatively little importance in the social structure.

My informant also admitted that they had made a great mistake in cancelling their laws regarding statues. It will be remembered that at one time the Erewhonians were overrun with statues, until they succeeded in passing an Act to the effect that no statue of any public man or woman should be allowed to remain unbroken for more than fifty years, unless at the end of that time a jury of twenty-four men, taken at random from the street, pronounced in favour of its being allowed a second fifty years of life. Every fifty years this reconsideration was to be repeated, and unless there was a majority of eighteen in favour of the retention of the statue, it was to be destroyed. The working of the Act brought about results that, on the whole, were satisfactory, and, as I have said, it was becoming a matter for regret that it had been repealed. So far as I could gather, hardly a statue or memorial was being erected without causing intense controversy. Sometimes the sculptor wanted symbolism and the people realism; at others the positions were reversed. Further confusion was added when there began to appear an archaic form of sculpture, primitive in form and execution. At the moment, I was told, no one quite knew what to think or say. Either one's conception of beauty was entirely wrong, and they would have to begin all over again, or these pseudo-modern works were definitely ugly. The fear of the scorn of a later generation made it very difficult to know what attitude to adopt.

Concerning the things which are definitely utilitarian, there was also much discontent. One party wanted everything to be underground, rather than have the country disfigured: the other maintained that utilitarian and financial considerations came first. Again, the Erewhonians were afraid of ugliness, yet had not sufficient confidence in themselves to believe that grace or dignity might be given to any practical solution if the matter were tackled directly in a proper spirit. As it was, their art was negative; they retained everything that was old, and dealt with the new in terms of the old. The whole tendency was to make their artists think of a new problem in terms of an old solution for a different problem. Many of my friends were of the opinion that the apparent negative condition of art, generally, might be merely an exaggerated newspaper growth. Opinions and prejudices were expressed much more freely in these days. If one were to inquire what art was coming to, there would be hundreds of replies telling you where it had gone.

Architecture—that is, I suppose, what would be termed fine architecture—seemed to be upon a much better basis than the other arts, probably because it is a practical and functional art. On the other hand, like every other art—but within its own limitations as an art—it had its coteries and movements. Movements which were really hundreds of years old still held a fascination, as new movements, for each generation. The desire to recapture the charm of simple things often led to the self-conscious design of plain things, through minds which were not simple, but highly complicated. Nevertheless, I found these movements to be healthy correctives where they caused men to think.

The general impression I gathered was that the Erewhonians were either a nation of grumblers not knowing what they were grumbling at, or they were frankly weak-kneed and unable to face their problems four square. With their mania for preserving and collecting things, they were fast losing faith in their ability to express themselves or their civilisation. Or, to put it otherwise, while they were failing in the big things that mark the culture and vision of a great nation, they were pre-occupying themselves—perhaps as a result, or from too much intensive cultivation—with æsthetic speculations that were leading to a tangle of contradictions in the minor or non-functional arts.

Sea-cliff as National Park.

The need for securing a considerable stretch of wild sea-cliff as a national park was urged by Dr. Vaughan Cornish at a meeting of the Geographical Association at the London School of Economics on January 4. The speaker said that owing to the rapid increase of motoring, which made the seaside bungalow easily accessible, the coast was undergoing a disastrous "ribbon development." It was largely upon this account that the need for securing a considerable stretch of wild sea-cliff as national park was more urgent than the formation of parks in the inland districts which had hitherto attracted more attention. Taking everything into consideration, the most suitable sites for the national parks of the coast were in Pembrokeshire and Cornwall.

DEVELOPED PLAN

MAURICE B ADAMS DELT FROM SKETCHES AND PHOTOGRAPHS LENT BY MR R·P·PULLAN F.S.A.

THE MERMAID·BOWL DESIGNED BY THE LATE WM. BURGES.ARA

(See page 130.)

CITIES OF DREAMS

By REGINALD HALLWARD.

WALKING along the quiet streets of cities, such as Senlis or Laon, I have often mused on how much is missed where the night is no longer allowed to weave its own delicious magic, translating the actual into a world of mystery and romance. To wander out from the "Place" at Laon and along the rue Serurier, narrow and dimly lighted, the stars faintly sparkling far up overhead, and a light in a window here and there, is to enjoy a city of dreams. Here is realism, but in a new category, with another set of values, liberated by the absence of light. For the lighting of the streets is better managed than here, in that there is less of it, so that a spell rests over the architecture and the inhabitants, which can hardly be the case where excessive lighting reveals everything too much. And there being less light there is more silence, and silence has its own faint music for listening ears, for more is left to imagine, and we are artists almost unaware.

The size and height of buildings has become an issue to-day, and we do not suffer from the excess of it in the old streets of these cities. I am inclined altogether to doubt whether the great scale of modern commercial building, in size and height (unless, architecturally, the content is equal to the size), is anything less than an eyesore—we may assume to overcome its baldness, by dragging in a bit of sculpture here and there, by some artist of eminence; but this sort of addition is advertisement more than art, and as we are all becoming realists to-day, which means looking at things as they are—at the facts themselves and not at our wishes about them—it is not impossible to question whether size carried to an extent which puts it out of proper relation with the beholder is architecture at all. Size only has the significance of the inspiration out of which it grew; if inspired by beautiful ideas, corporately expressed, as in Amiens, or Beauvais Cathedral, it will have the significance and beauty of those ideas. If including only the inspiration of profits rather than these, we shall find the more temporary character which is noticeable as a feature in present building. We must pay the price if we would enjoy the patrimony, and I think we are on the eve of new interpretations directing us to paying it, when architecture will find more freedom and a more enlightened inspiration. If the supremacy of our commerce should pass, it would be an inspiring thought that something nobler in our national character would replace the loss.

Wing of Old Palace, Senlis.

All architecture is portraiture, whether we build, or paint, it is much the same, for both are the likeness of ourselves, and we may read either the nobility, the romance, the reverence and dignity we ourselves put into it or which it lacks. I recall houses in Senlis often hidden away, as though shy of the friendly greeting they would bestow, built perhaps less well, as we regard the word, but with a friendly, gracious character about them, just that sense of greeting in them as makes one plead against so much of our own knowledge. For is it not as important to feel as to know?

Many of the houses at Laon or Senlis, in what remains of them, are a child's story woven out of dreams and what we ourselves add to them. And this is as it should be. Architecture is combined in the beheld and the beholder. A book or a building may be said not to have been born until read or seen, as sound is not perceived until it strikes the ear. I have in mind a house in Senlis, tucked rather away, but facing down the cobbled street and peopled by memories known and unknown, whose grave and homely features declare the kind of life of its inhabitants. Nor do the houses here repeat the same conventions, for there are distinguishing features, a play of craftsmanship, different altogether to the infinite sameness of so much of modern building. The worship of the practical haunts us to-day, and to be thought practical commends us at once. Yet is it altogether unpractical to wander through dimly lighted streets and have freedom for our own thoughts, and to discover ourselves in the process? Yet how often this is the last thing to be discovered by the "practical" man. Nothing, in fact, would surprise him more, for it would unfold a new world to him.

It would be very difficult to apply some of the recent theories about architecture to these old houses, such as that beauty grows out of the requirements of use, when all the time we may have these requirements without any beauty; or that right construction is all we have to regard, and the rest will follow. This is at once invalidated in the instance of a teapot, which may pour and make the tea and yet be unbeautiful. There are houses in Senlis or Laon, or, for that matter, in many English towns, which, in defiance of these theories, go waltzing off into sheer romance. Where the practical fails to emerge in the beautiful it meets only ephemeral and temporary needs, but the spirit of man is not temporary, though it may become inactive, surrendered to that second best whose service is never freedom! For this reason we are now so rightly anxious to preserve our ancient buildings from the multiple destroyer. Architecture reveals the secret of the life which it expresses, and at the beginning of a new epoch, when so much is passing and the new not yet emerged, these theories, barren as they are of positive results, may yet present all we have to trust to and do duty meanwhile.

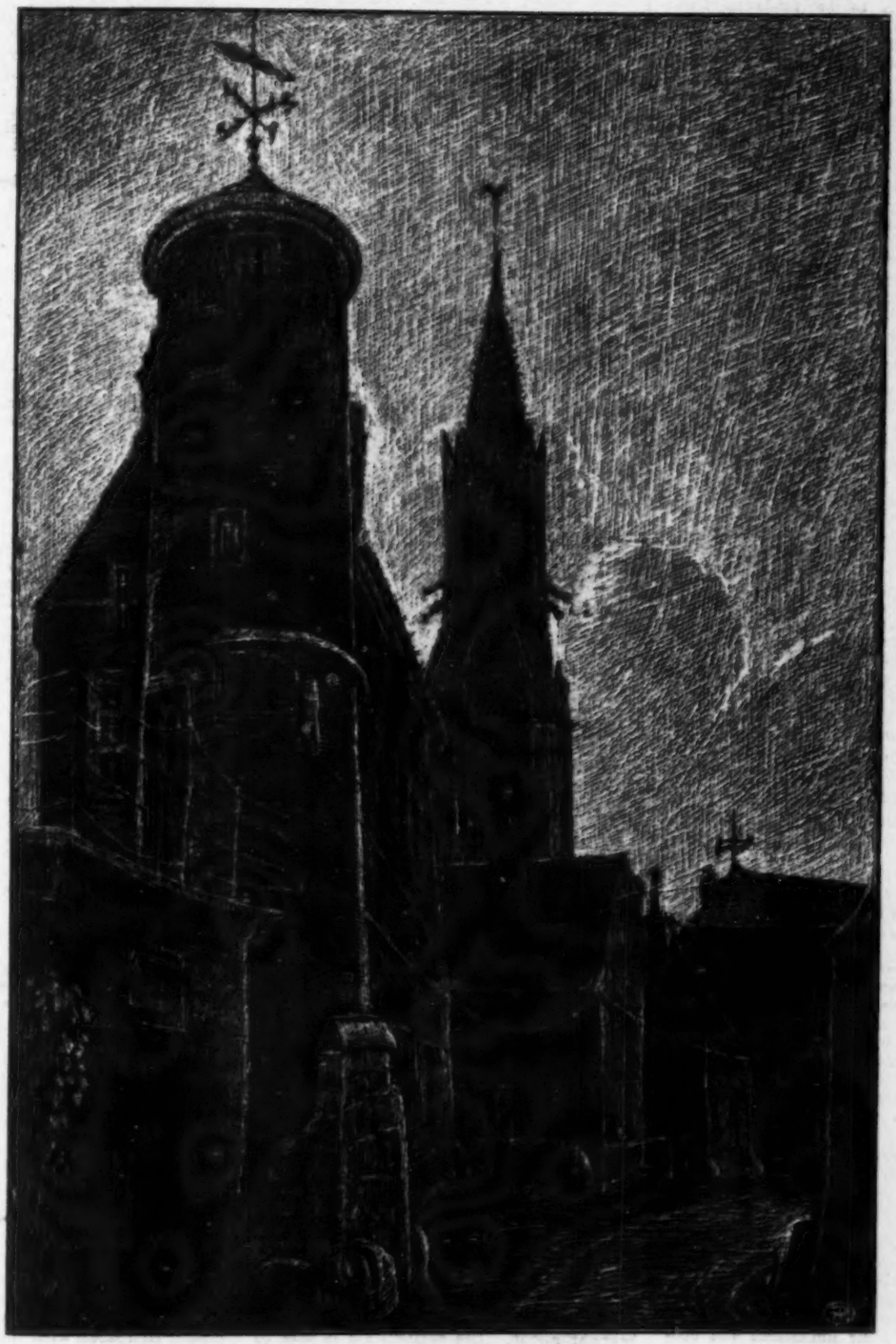
In the city of Senlis, the larger houses are denoted by the high walls which hide them from the street, and though they are the record of exclusiveness and security as well, something also must be allowed for the romantic spirit of the builders. Anyhow, high walls do not a prison make to the lover of effective architectural features, and this is one of them. Is it that the unknown, the concealed, allures us into shaping legends of the unseen life within them? Such high walls, and in such a relation, are none the less a survival, but surely a very beautiful one. With a few high climbing roses topping them and relieving the austerity of the high enclosing gateways, they dignify any street in which they are found. And at night especially there is something very arresting in these high soaring walls.

Old Mansion, Senlis.

Unrepentant believer in romance, as the true clothing of life and essential part of its reality, I would sacrifice some convenience to keep the thoughts that are dissipated where the practical only, labour-saving and "ideal" housing prevails in its stead. For after all, we have to dress our life and live it as beautifully as we may, and its dignity is most worth preserving; and what have we gained in all this labour-saving and modern convenience unless it liberates us to ampler life? It is this great gift of life and what it includes that we need to understand better.

Lest it should be considered I am writing mere mediævalisms, I know, when standing before these ancient houses, or cathedrals, I am looking into a sepulchre in which the past lies buried, and all our desire should be to see that character, which outlasts time, that eternal human possession which such records possess, included in what we build now. That it is in way of being included, though under what forms we can yet hardly comprehend, I do not doubt.

How this should be reached can only be glanced at here. The first consideration lies in the spirit with which we approach our work. There is, unhappily, not that interrelation between the arts that arises where there is a properly understood perception of their realities, and of our place in them. The want of this common outlook, arising out of mutual confidence and good will, is lacking. Architecture suffers where it is only the architect; craftsmanship where it is only the craftsman. From this poverty of the single mind, this unrelatedness, we have to free ourselves, by the confederation of all in a more equal relation, through respect for human claims. Through the closer union of all these unrelated parts the future will be built up, for it is in the spirit with which we act on which all depends. Let us forget our own prerogatives for the prerogatives of the work we have to do. If we thought less as individuals and more corporately as artists, we should not be so much divided. This corporate idea will be expressed in the desire of each to extend the opportunity and efforts of others, working together in a spirit of friendly emulation, anxious that the tools shall reach the hands of those best fit to use them. Something of this spirit is seen in mediæval art, and in the best of all periods, humanising, transfiguring, and it is to be seen in the old houses of such cities as Senlis, or Laon. And for all of us to-day the solution lies less in new schemes of architectural, or craft training, in anything outside of ourselves, than in a new spirit within ourselves, growing out of truer conceptions of life and art, and the drawing closer of human relationships.



A Street in Senlis.

From a Drawing by Mr. Reginald Hallward.

CORRESPONDENCE

The London Building Acts.

SIR,—I have noted your column regarding the amazement caused to American visitors that the top floors of important business premises in London are unoccupied owing to restrictive by-laws. I also note that a determined effort is to be made to free London from these shackles. The London Building Act Committee of the Royal Institute of British Architects have taken this matter up with the London County Council, and are now awaiting their decision. The co-operation and help of your widely read journal would be welcomed in this important matter, and I would be pleased to render any assistance possible.

Trade and business buildings are restricted in London as in no other city in the world. The general height permitted for London is 80 ft., with two stories in the roof (100 ft. in all), but if a business building exceeds 250,000 cubic feet without vertical divisions it must sacrifice the two stories in the roof. This is supposed to be necessary for fire safety, but it seems to be a ridiculous by-law in view of modern fire-resisting construction and the efficiency of fire appliances It causes immense annoyance to building owners and retards building schemes.

The regulations were made in 1908, twenty-one years ago; they were revised about five years ago and are supposed to be under revision at this date. These restrictive regulations are not well known as they are not usually published in the copies of the Building Acts in general use. Few architects are aware of them until they have to make application to the London County Council for the erection of some building affected by them. The Royal Institute of British Architects' Building Acts Committee published them in the current number of the "Journal," and as they can be altered or amended by the London County Council, without reference to Parliament, the matter is of the greatest urgency.

LOUIS BLANC,
Hon. Secretary, R.I.B.A.,
London Building Acts Committee.

Perspective and Photography.

SIR,—I have to thank Mr. O. Newbold for his courteous reply to my letter. I am no politician, and he may be right in his criticism of the "central government, the English rustic and the British workman," but he produces no arguments to support his theories as to the relative accuracy of perspective and photography. I only once met Mr. Pennell, but unfortunately the subject of the value of photography to perspective draughtsmanship was not discussed. Photography certainly showed the black and white draughtsman and the etcher the artistic possibilities of the skyscraper, the pit-head, the engineer's workshop and the mine.

I have already commented on the fine work Mr. Newbold has done in black-and-white architectural work, but I doubt if Mr. Newbold realises how much he is indebted to the art of photography. One example will convince an unprejudiced seeker after truth. In a bird's-eye photograph from an aeroplane the vertical lines of buildings converge downwards. This is obviously right, as the picture plane is tilted forward. In most architectural bird's-eye views the vertical lines of buildings are shown vertical. Further comment is scarcely necessary. Things are only true to the absolute if their limitations and conventions are understood and accepted.

With reference to the R.A. and R.I.B.A., Mr. Newbold again produces no evidence to prove his statements. No one for a moment supposes that these institutions are perfect or embrace within their ranks all the artistic talent in the country; but Mr. Newbold does not suggest a substitute, nor does he give reasons for supposing that art would benefit by being separated into watertight compartments. So far as the R.I.B.A. is concerned, the existence of its annual scholarships, which have done so much to foster and encourage draughtsmanship and the study of the cultural side of the profession, would alone justify its existence if any justification is necessary.

Mediæval methods were all very well in mediæval times but are unfortunately not possible to-day. Traditional methods may be silly, but they produced the mediæval work which Mr. Newbold admires so much. Among artists, the architect is handicapped by the fact that he is entirely dependent on the skill of craftsmen and fellow-artists to materialise his ideas.

WILLIAM DAVIDSON.

Street Widening, Cambridge.

SIR,—I missed your issue of December 13 in which Mr. Hughes replies to my criticisms on behalf of the Cambridge Preservation Society. I note that the houses in Northampton-street do not belong to the Society, but the Society was anxious that they should be saved. I am familiar with Mr Hughes's excellent work in Cambridge, and am sure he realises that the beauty of these cottages is in relation to the existing lines of the street, and they will be meaningless if the supporting lines of Sidney-street are removed. I agree that long years of pitiful neglect have given the Sussex-street group a very hopeless look, but their construction is sound and no method of building is less affected than these soundly framed buildings. I have examined these particular cottages carefully and I know they could be restored into a desirable beauty. There is plenty of room behind to get any additional accommodation required, leaving these characteristic old buildings on the street. The long line of roof running along the side street is very beautiful, and too characteristic a piece of old Cambridge to lose without a real protest from any Preservation Society. I repeat a protest which was made by the late Master of Magdalene years ago, when it was first proposed to destroy this corner.

I am delighted to think that the Cambridge Preservation Society is giving its attention to a new by-pass road. May it be planned with trees and a definite formula of building well set back behind these. Meantime, let the Society protest definitely against any trifling with the characteristics of a street which it can only maim with its setbacks, without getting any real economic values.

Mr. Hughes does not refer to the offensive advertisements in Cambridge. Will his Society remind the authorities they now have power to control these?

P. MORLEY HORDER,
Chairman of the Royal Society of Arts Preservation Committee.

R.I.B.A. STUDENTS' DRAWINGS

WE fear the verdict on the year's competitions will be that of a disappointment. We can appreciate the energy of the competitors, but we cannot help wondering whether the direction of their efforts is as wise and inspiriting as it might be.

The Soane medallion drawings are large in quantity but seem disappointing, compared with the results this competition has often brought about. The competition is won by Mr. J. L. Martin (University of Manchester) for a sports centre. It is treated with dignified, well-proportioned blocks, but one would incline to a little more festive treatment, which in a subject of this kind should surely be considered. The main building, in "Noah's" design, is a sort of large clubhouse, devoted to all kinds of indoor comforts and entertainment. It is flanked on each side of the quadrangle by swimming baths and fives courts, and across the whole front of the quadrangle is a great open-air swimming bath.

One of the designs ("Don") takes a somewhat wider view of the subject by the inclusion of playing fields and gymnasium; nice drawing, with some good architectural feeling, illustrate this design. There are twelve competitors' designs exhibited in over fifty drawings. One regrets that so much effort has not been applied in a more satisfactory way.

As regards the Alfred Bossom competition the prize is not awarded, but a very nice set of drawings was sent by "Truro," and there are points of decided excellence in them. There is an air of straightforwardness about the plans which is attractive. The design by Mr. Edward Forster (University of London) is awarded a silver medal. The elevational treatment is sensible and conveys an agreeable sense of solidity.

The design, "Gurrie," by Mr. H. B. Rowe, who also receives a silver medal, is also a creditable design both in plan and elevation, and in some respects his plan has much to commend it.

Probably the chief problem of the retail stores is correct planning. One item of correct planning is the right allocation of selling space to the various departments. It is perhaps, therefore, a pity that the conditions of the competition (which are generally well drawn) were not quite specific with regard to the accommodation to be provided. It opens up an opportunity for the provision of departments not specified; and the specification of the departments to be provided contains certain obvious gaps, in filling in which competitors have used their discretion. The descriptions scarcely follow the common nomenclature of progressive stores. It will be noted in this connection that "Truro" allocates a space to "Tailoring" which the store could hardly afford, unless is meant (as it probably is, so far as the men's tailoring is concerned) "ready made clothing" also. Similarly, "Women's tailoring" probably includes "costumes," "gowns," "mantles," and so on. Perhaps the most notable omission from the accommodation specified is the department so common as to be a rule in a big stores, namely, the "Mail Order" or "Country Order" department, which "Truro" ignores and which "Gurrie" provides. Perhaps, however, the terms of the competition are so drawn to test, in connection with the work submitted, the extent to which the competitors show they have approached the planning of their building in harmony with the practical politics of retail store organisation.

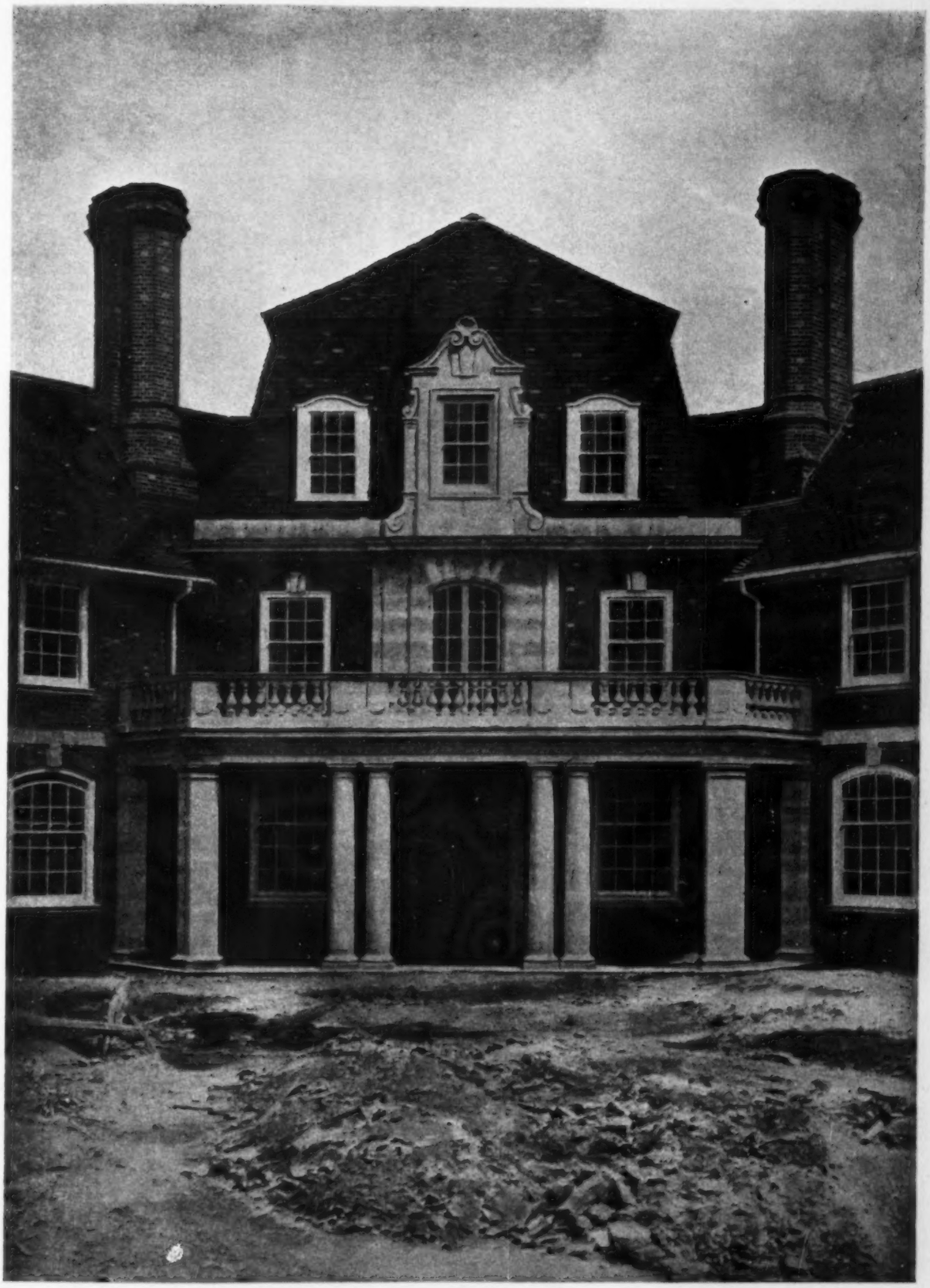
The Tite prize goes to "Corio," Mr. A. C. Collins (Australia), for a well-balanced group for an Italian monastery. There are other designs which have a higher quality of design and portrayal, such as that by "Ebenezer," which is far above the average in merit. His drawings are charming, and he has a good sense of architectural value. This student should go far. Another good design is by "Shandy." Certificates of hon. mention have been awarded to "Bubbles" (E. F. Stacy), "Tute" (Harry Banister), and "Ebenezer" (E. F. Starling).

The Owen Jones is won by Miss K. A. Veitch (Architectural Association). Her colour scheme is pleasant and harmonious, but it is cold and sombre, and does not seem to suggest a civic hall. This Owen Jones competition ought to attract something more definite in colour quality.

Mr. K. H. Read (Associate) wins the Saxon Snell prize and £100 for 19 sheets of drawings, which show a large amount of labour compared with the Owen Jones prize won by three sheets. This scheme of a hospital centre indicates a good deal of careful thought, but does not attract by its elevational treatment.

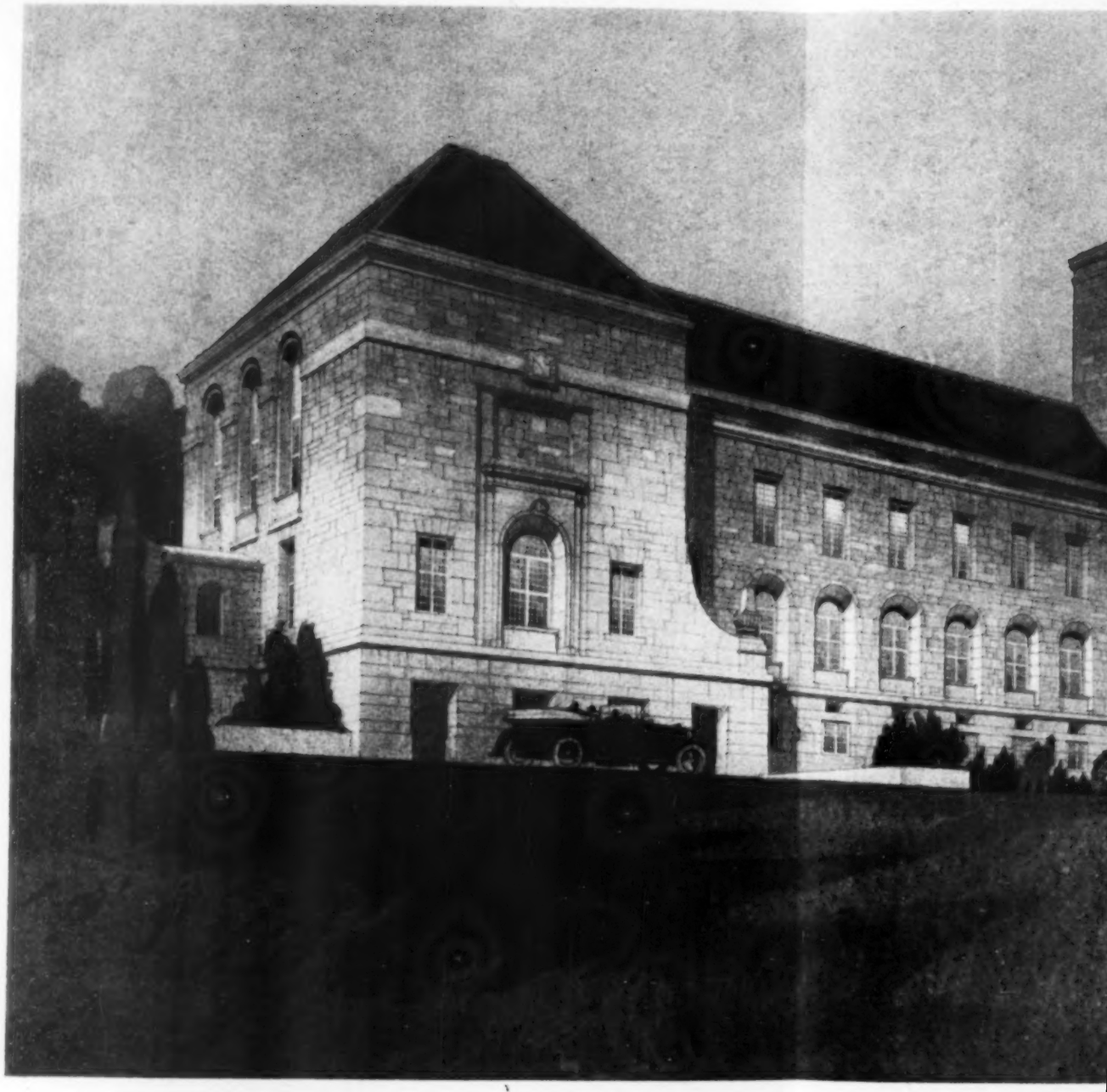
The Neale Bursary (£90) has attracted a good set of designs of Dorchester House, by B. S. Tempest. The winner is Mr. W. S. Cormack.

The measured drawings, silver medal and £75 prize goes to "Parsnip," by Miss Sadie Speight (University of Manchester). Her drawings of Brescia are excellent; amongst the best we have seen.



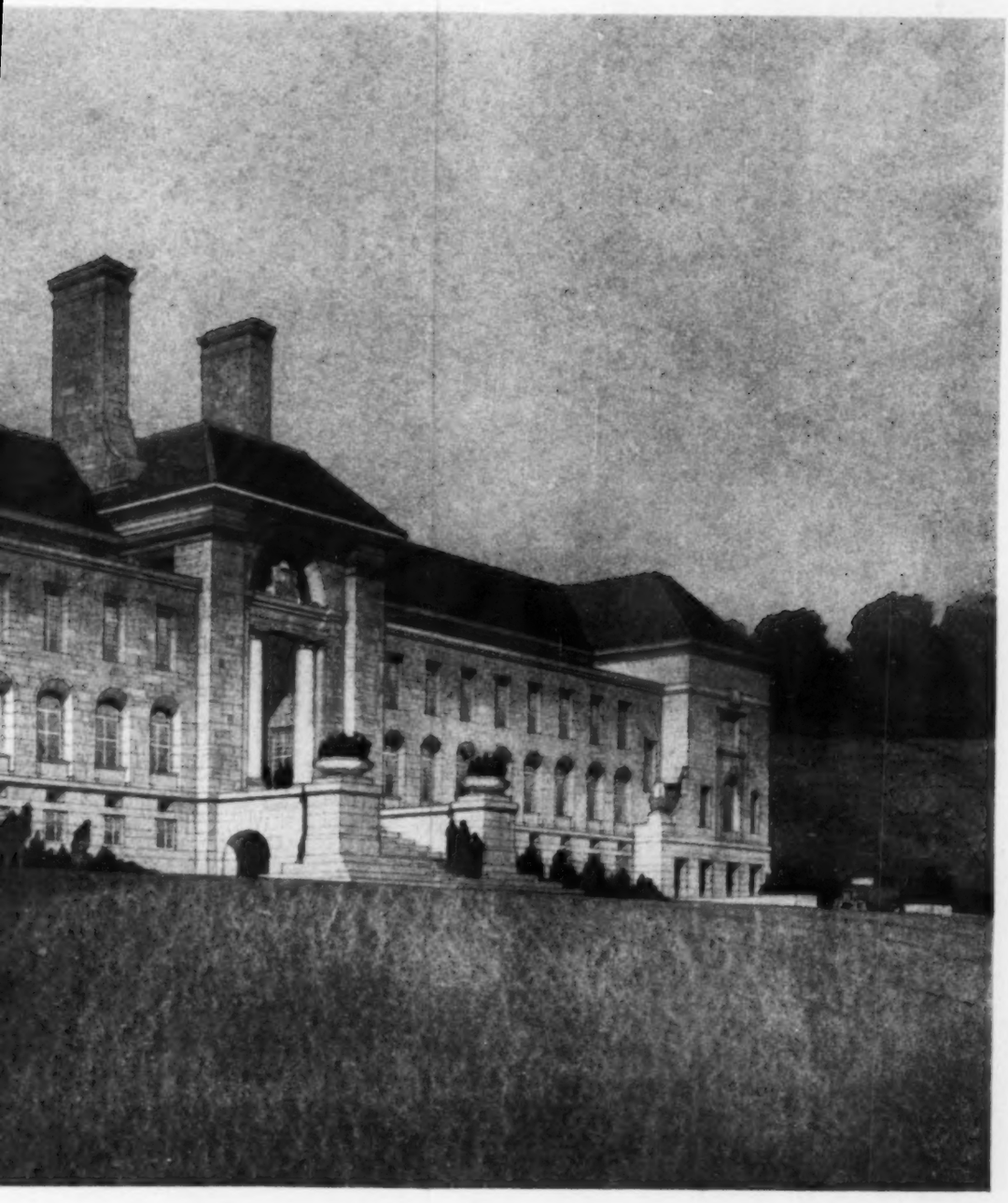
Lord Wandsworth Agricultural College, Long Sutton, Hants: Senior Boys' Hostel, Main Entrance.

Mr. E. Guy Dawber, A.R.A., F.R.I.B.A., Architect.



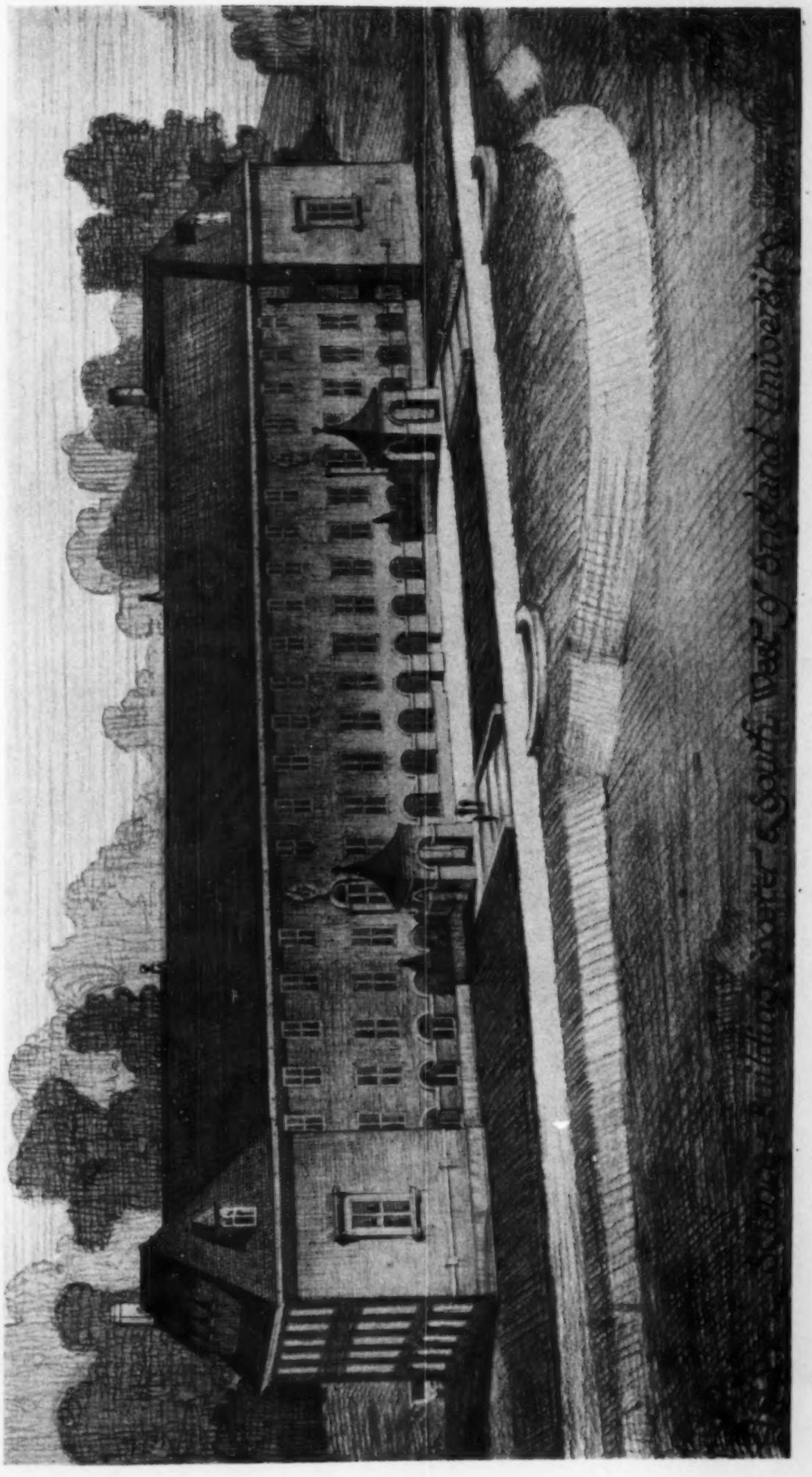
Exeter and South-West of England University : Sketch Design fo

MESSRS. E. VINCENT HARRIS and S. K. GREENSLADE



Design for Administration and Arts Block.

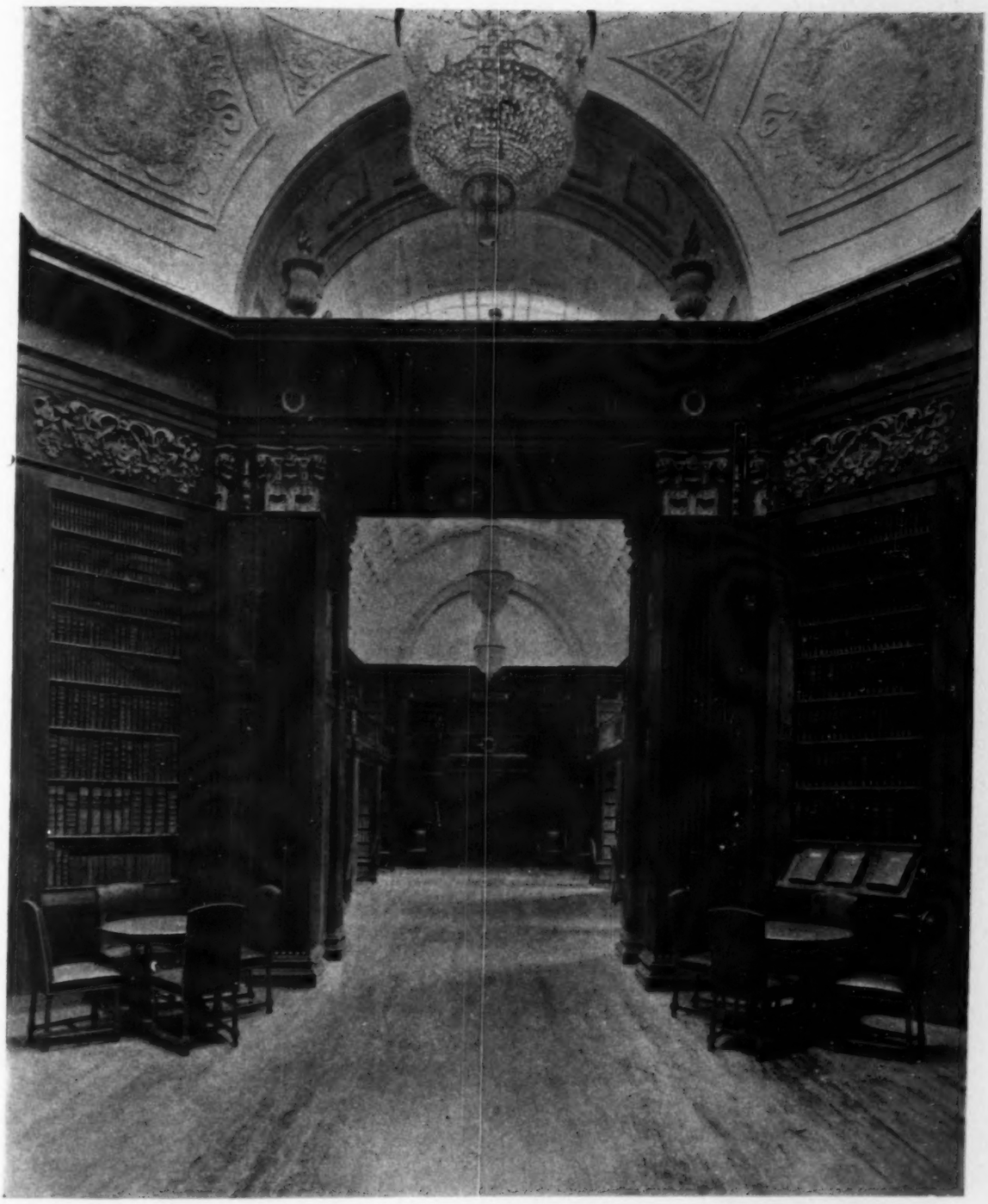
EENSLADE, Joint Architects.



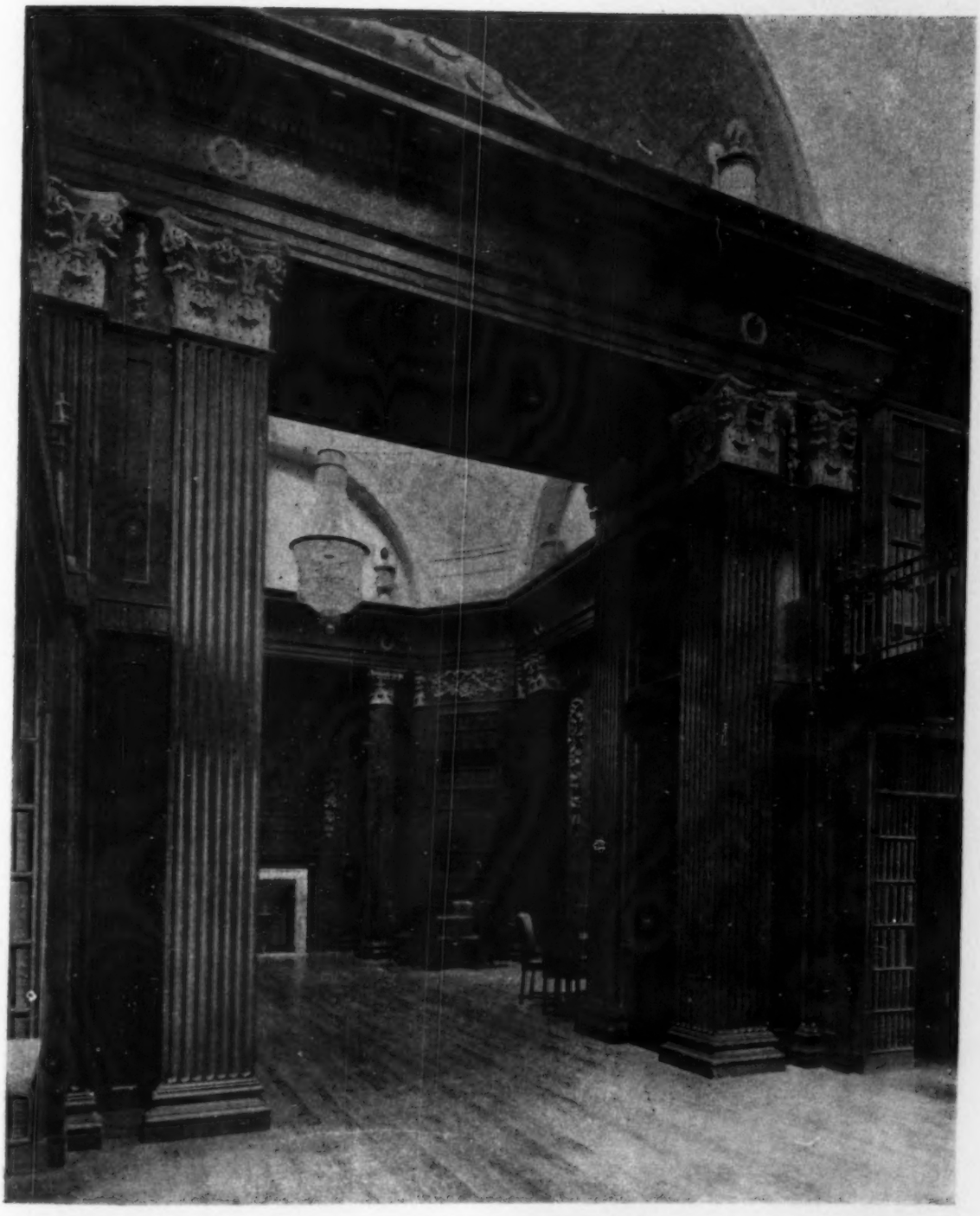
Messrs. E. Vincent Harris and S. K. Greenslade, Joint Architects.

The Devonport Pathology School, Greenwich: Detail of Entrance.

SIR EDWIN COOPER, Architect.



The Holker Law Library, Gray's Inn.
SIR EDWIN COOPER, Architect.



The Holker Law Library, Gray's Inn.

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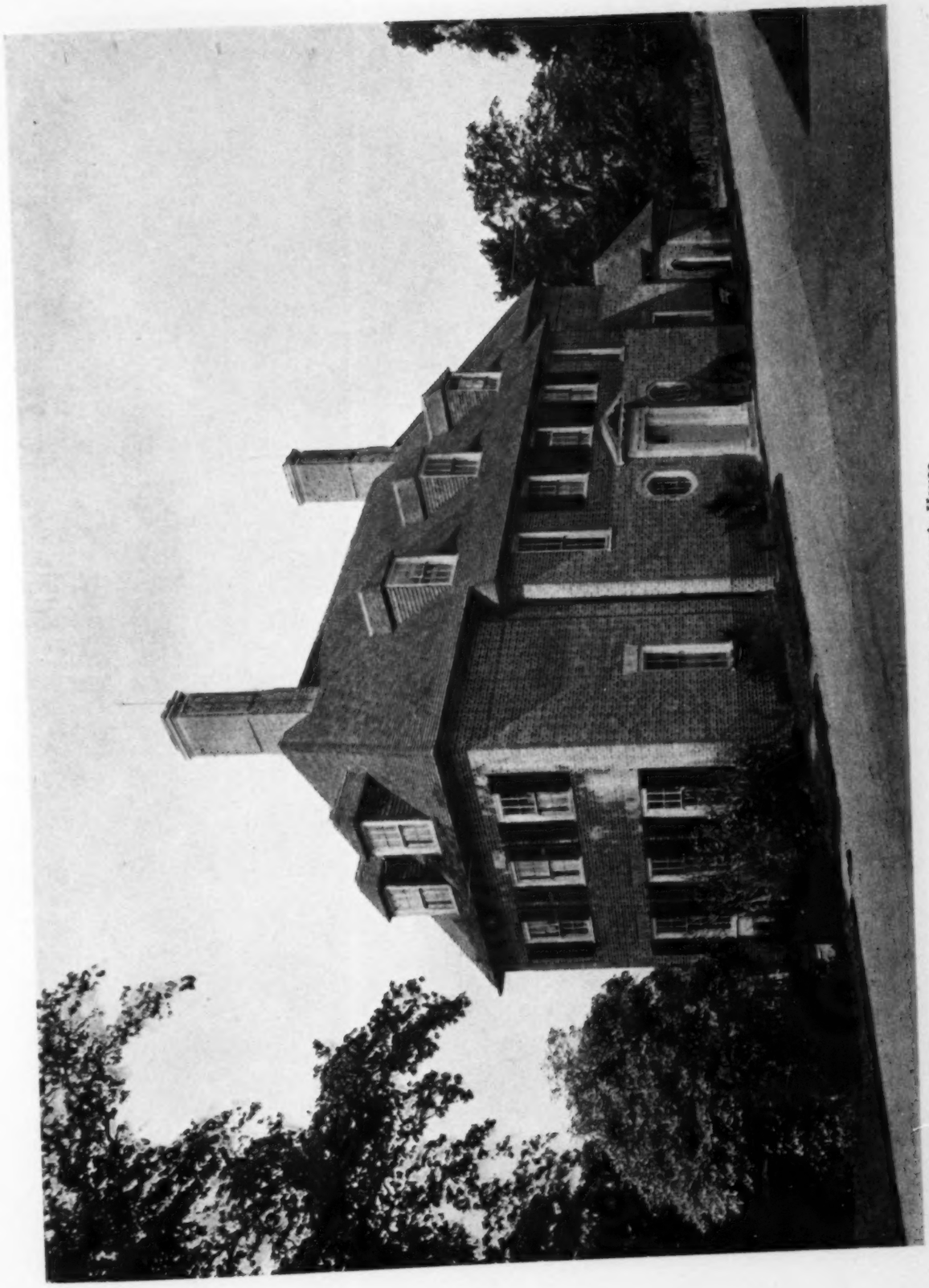
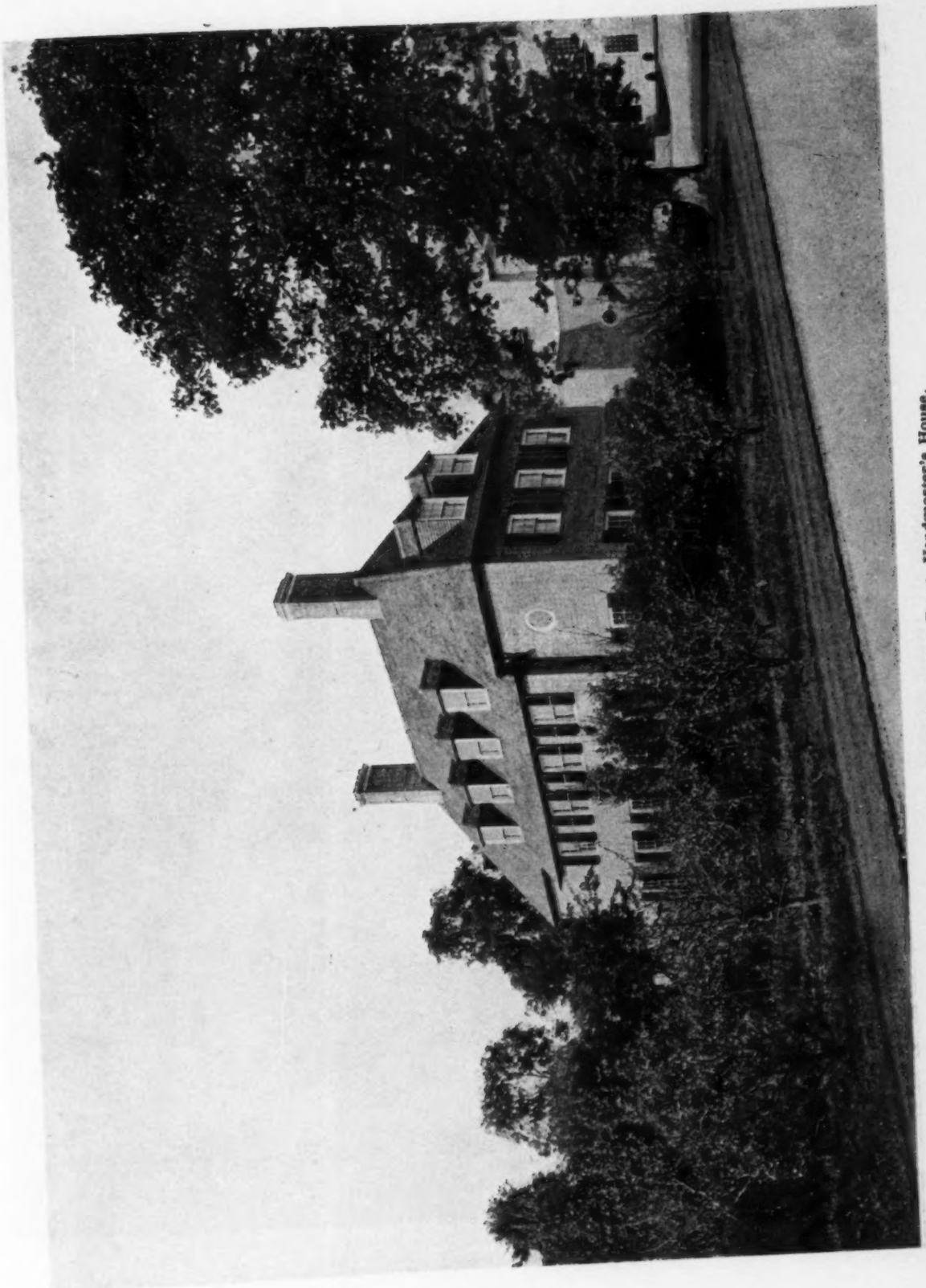
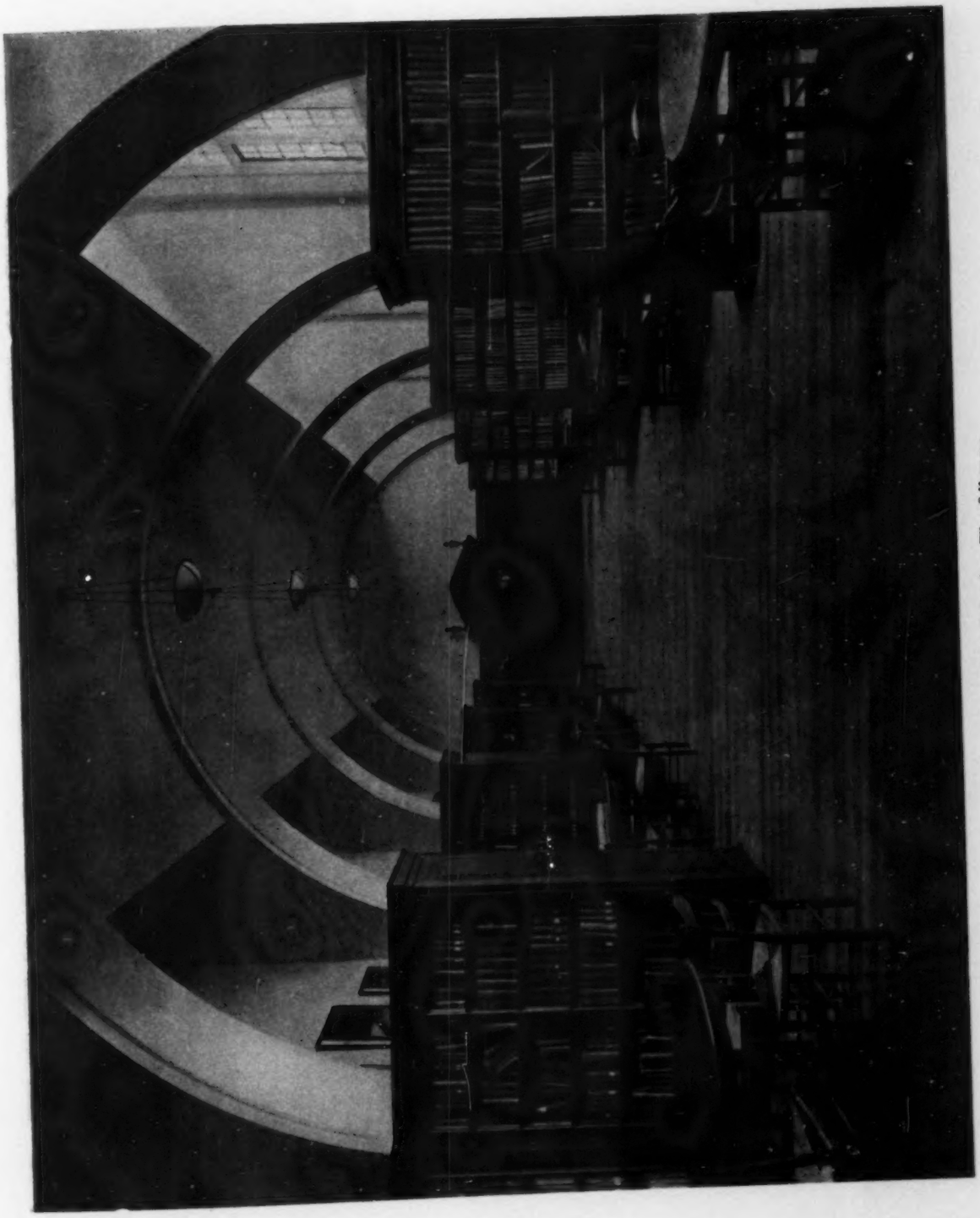


Cranleigh School: Headmaster's House.

SIR EDWIN COOPER, Architect.



Cranleigh School, Garden Front, Headmaster's House,
Sir Edwin Cooper, Architect.

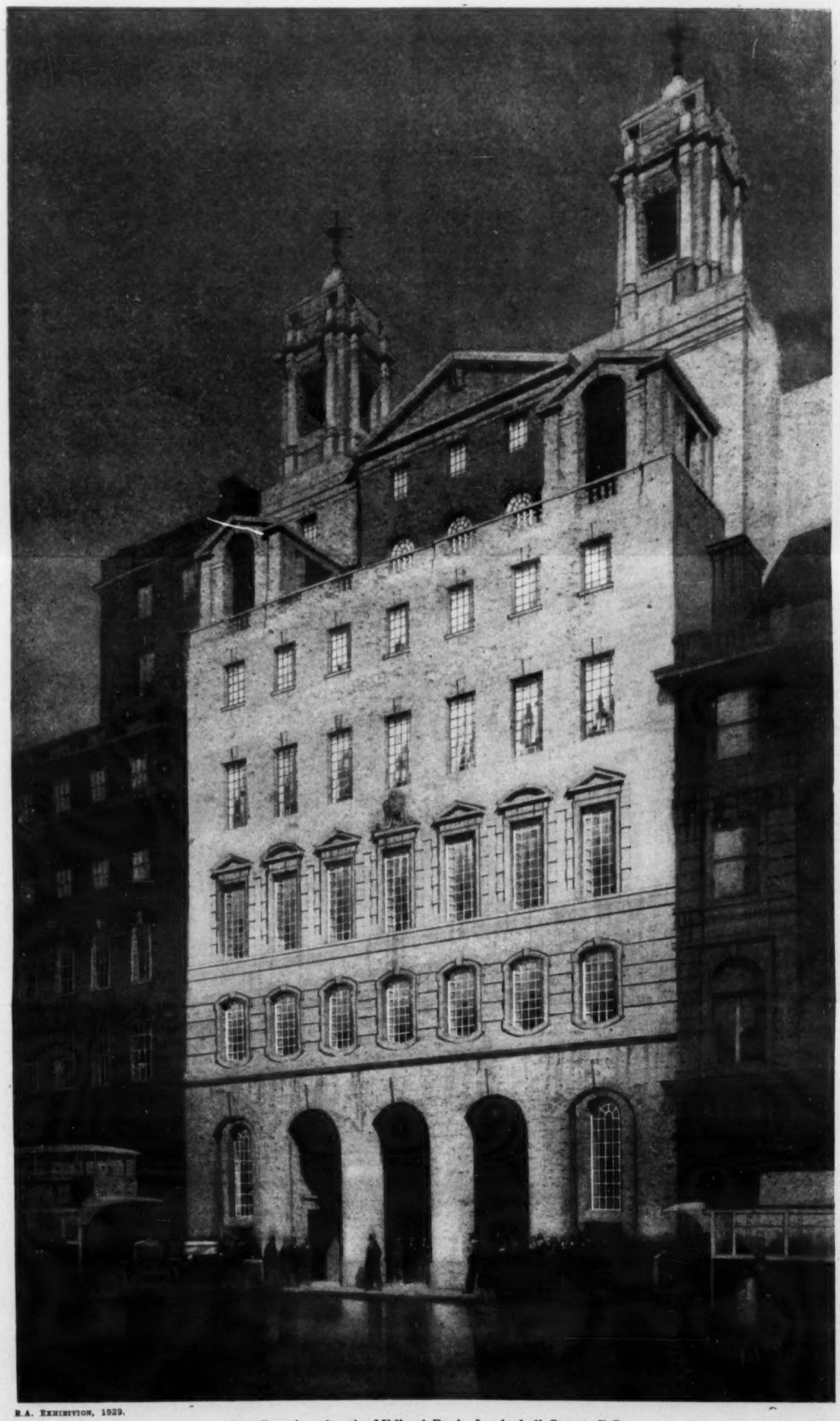


Cranleigh School: The Library.
Sir Edwin Cooper, Architect.

R.A. Exhibition, 1929.

New Premises for the Midland Bank, Leadenhall Street, E.C.

Sir Edwin Lutyens, R.A., F.R.I.B.A., and Messrs. Whinney, Son & Austen Hall, Associated Architects.



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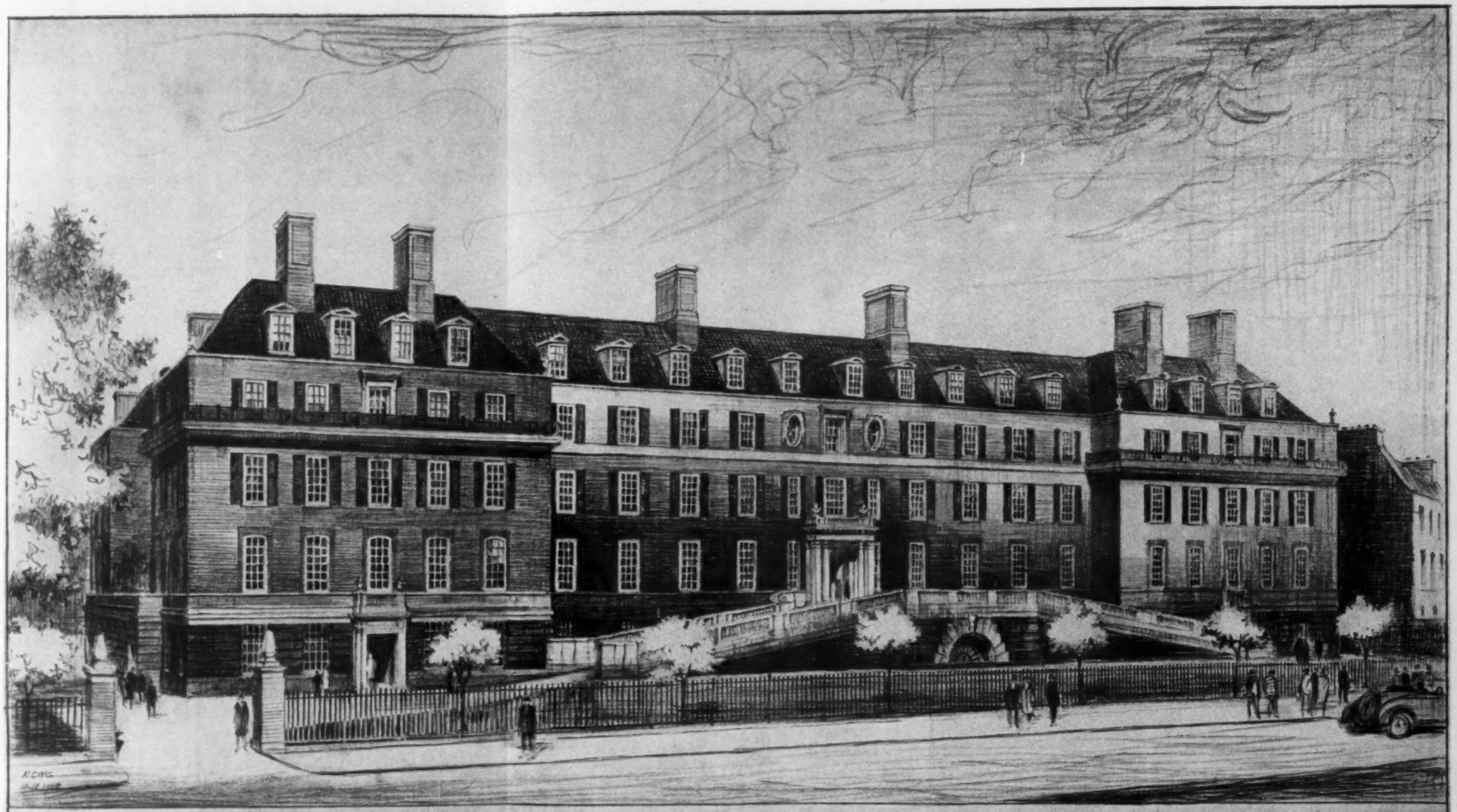
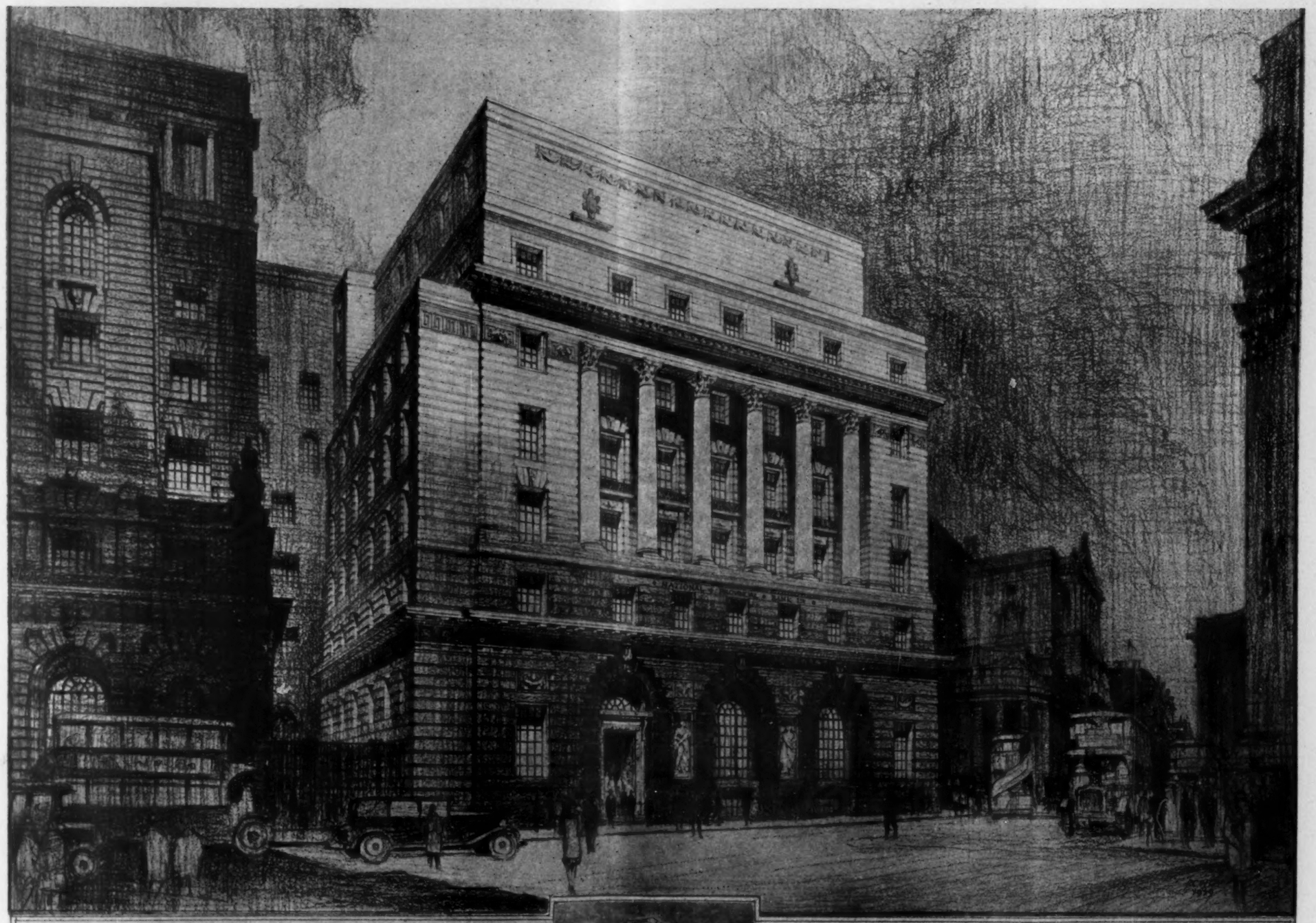


The South London Hospital for Women, Clapham Common.

SIR EDWIN COOPER, Architect.



THE NATIONAL PROVINCIAL BANK LTD.

STUDY OF MANSION HOUSE STREET FACADE

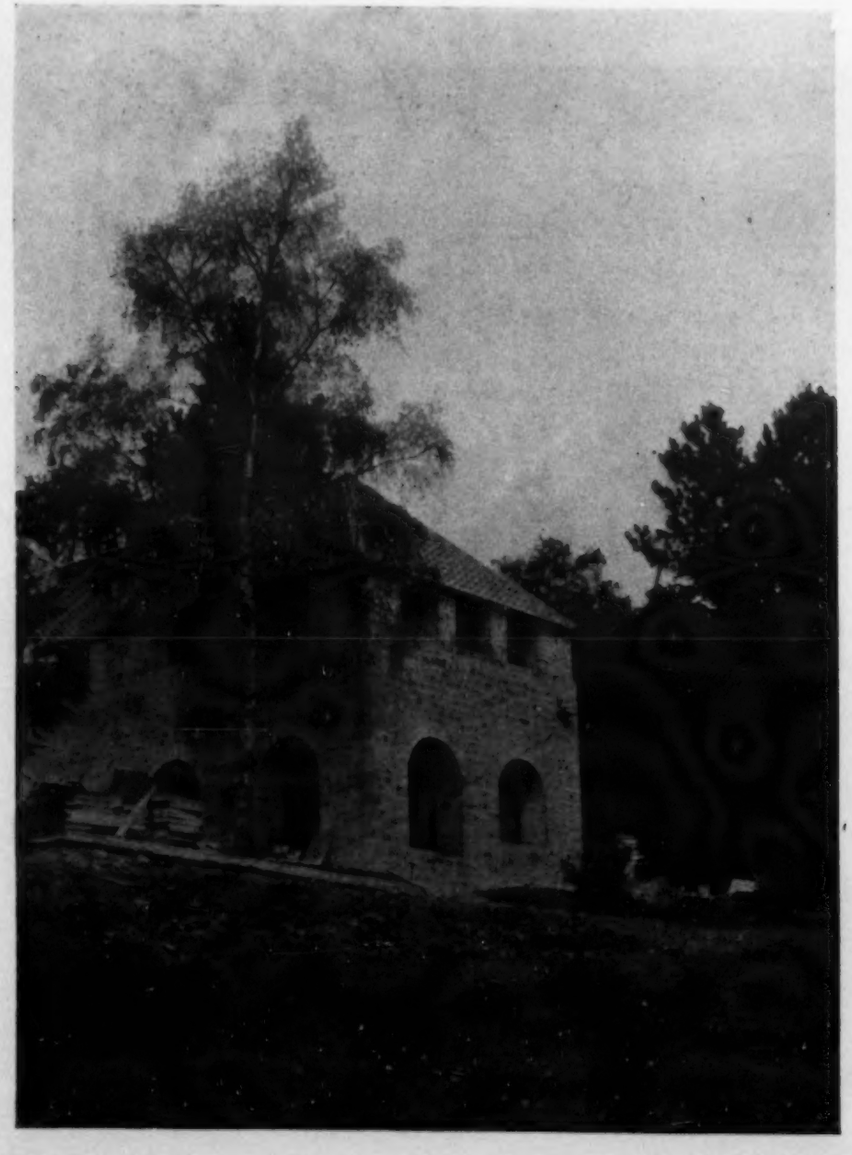
SIR EDWIN COOPER, Architect.

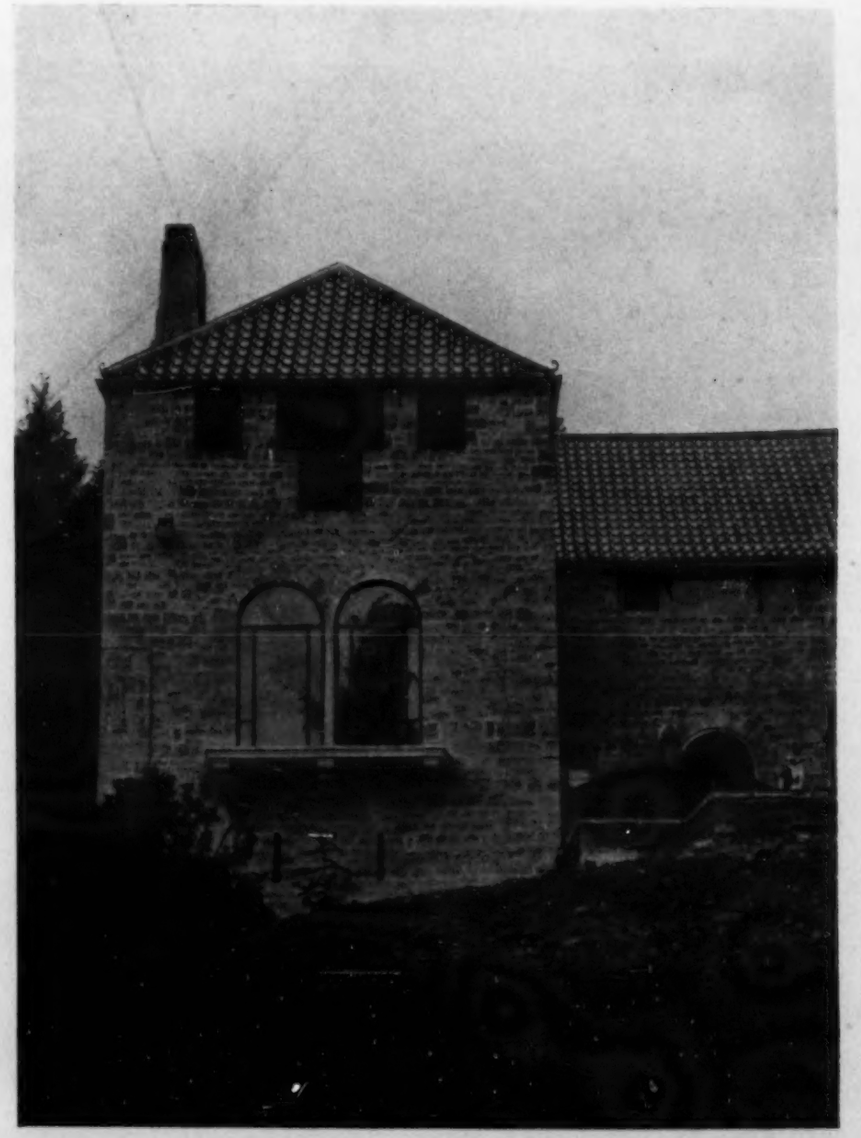
"A Spanish Fantasy."

By Professor A. E. Richardson.

House at Hurtwood, Surrey.
Mr. Oliver Hill, F.R.I.B.A., Architect.

* *





House at Hurtwood, Surrey: The Wings.

Mr. Oliver Hill, F.R.I.B.A., Architect.

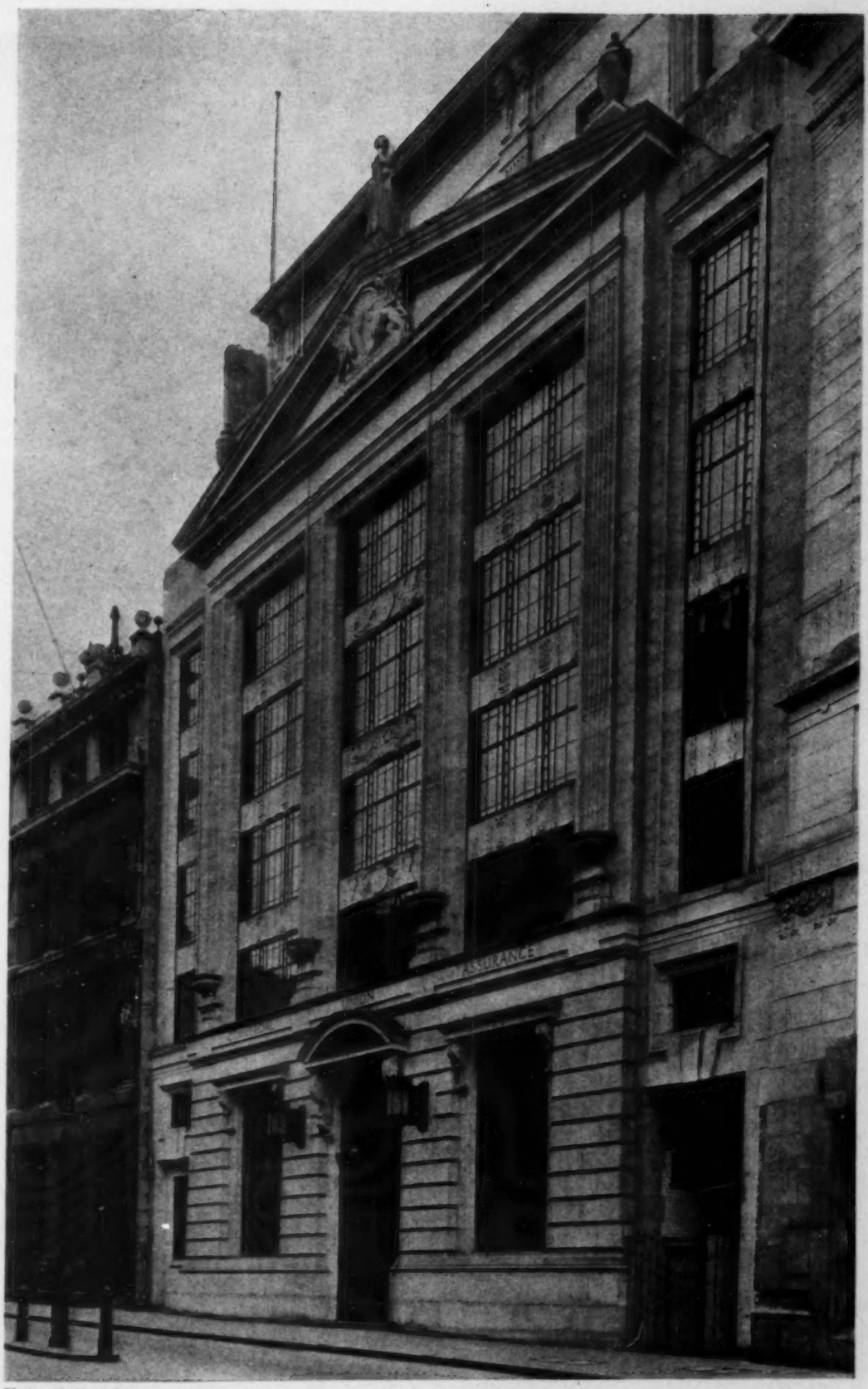


Photo: Bedford Lemere.

New Premises of the Commercial Union Assurance Company, Cornhill, E.C.

Sir Aston Webb, R.A., & Son, Architects

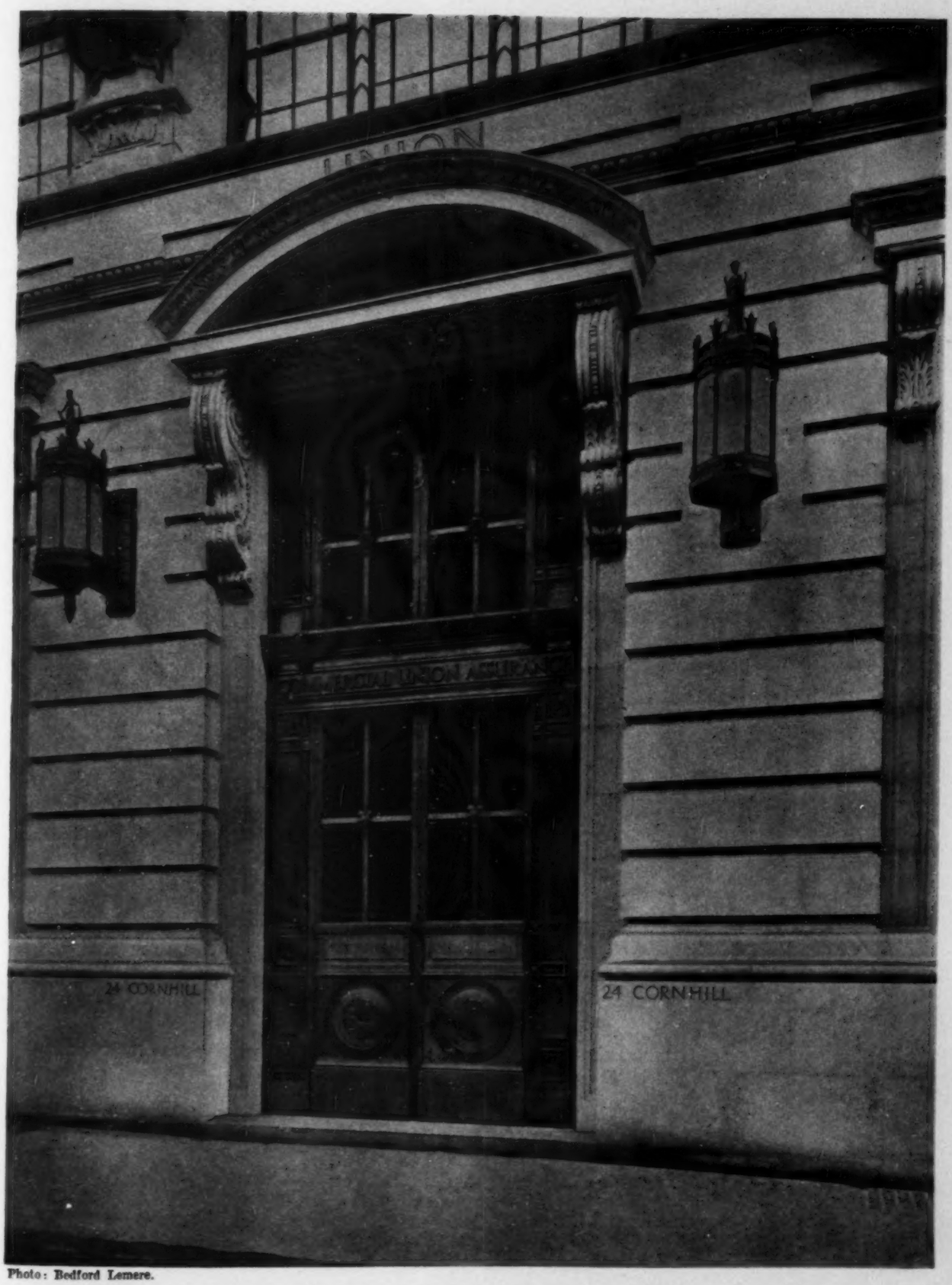


Photo: Bedford Lemere.

New Premises of the Commercial Union Assurance Company, Cornhill, E.C.: Detail of Entrance.

Sir Aston Webb, R.A., & Son, Architects.

Photo: Bedford Lemere.

New Premises of the Commercial Union Assurance Company, Cornhill, E.C.: Entrance Hall.

Sir Aston Webb, R.A., & Son, Architects.

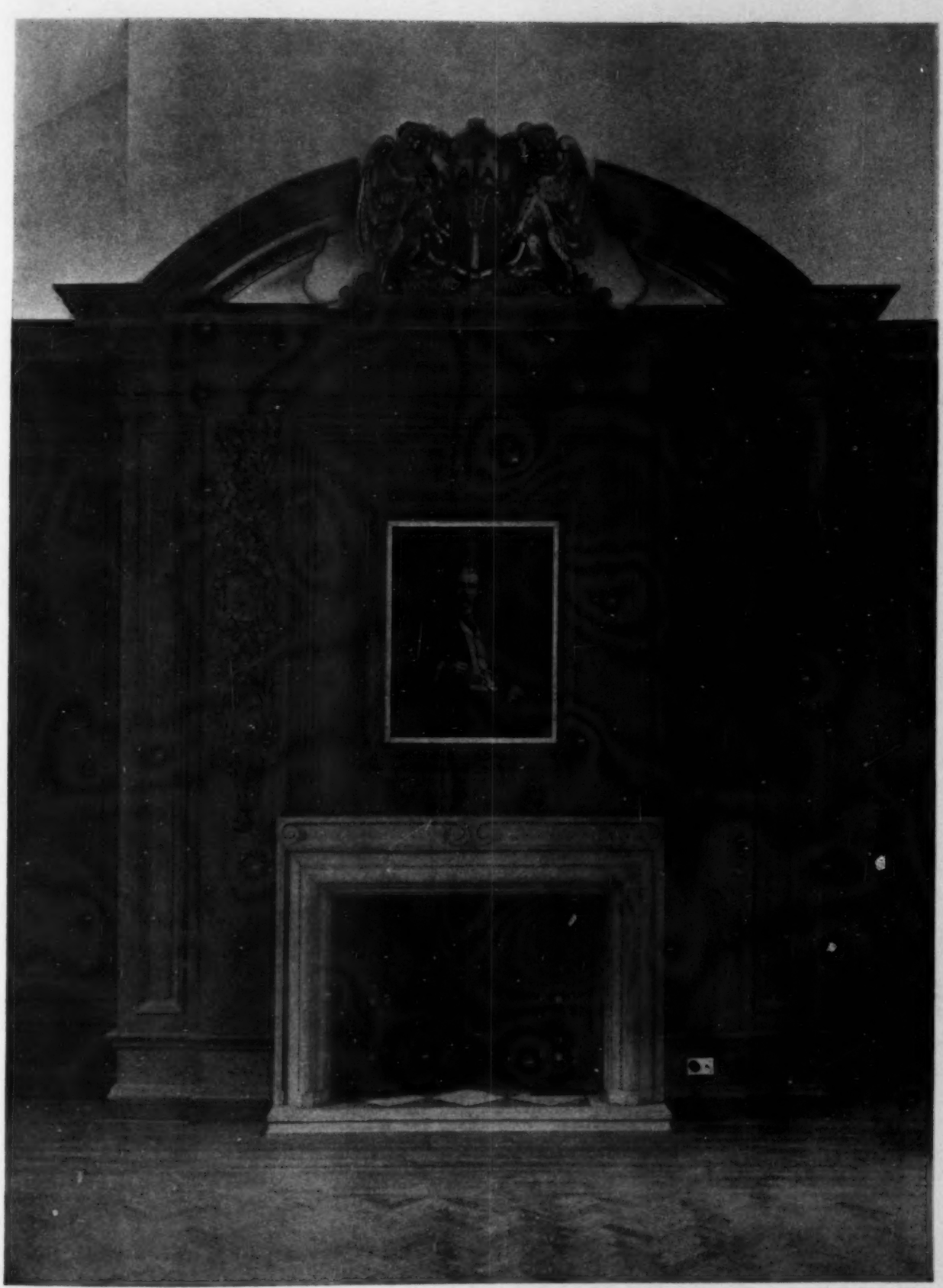
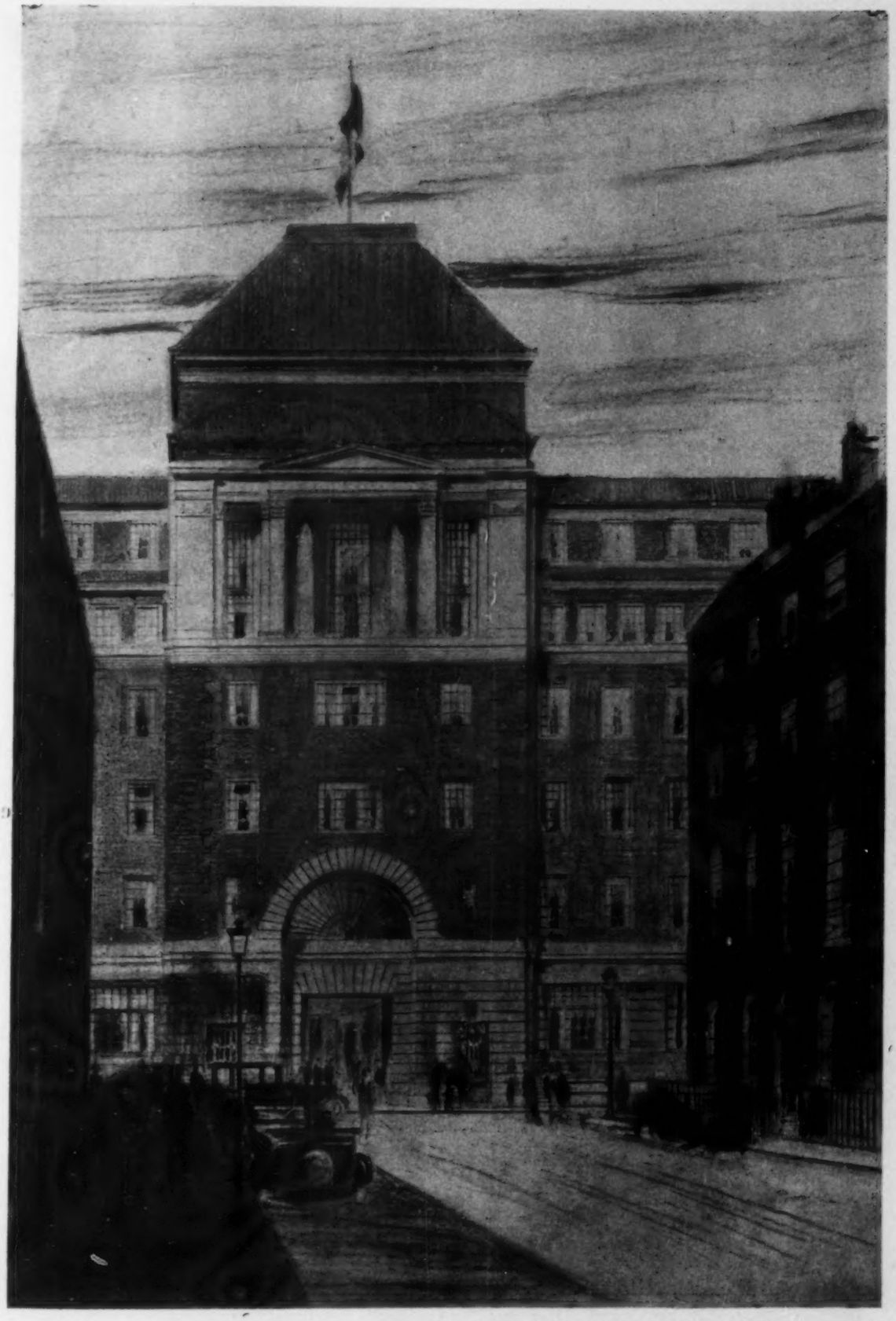


Photo: Bedford Lemere.

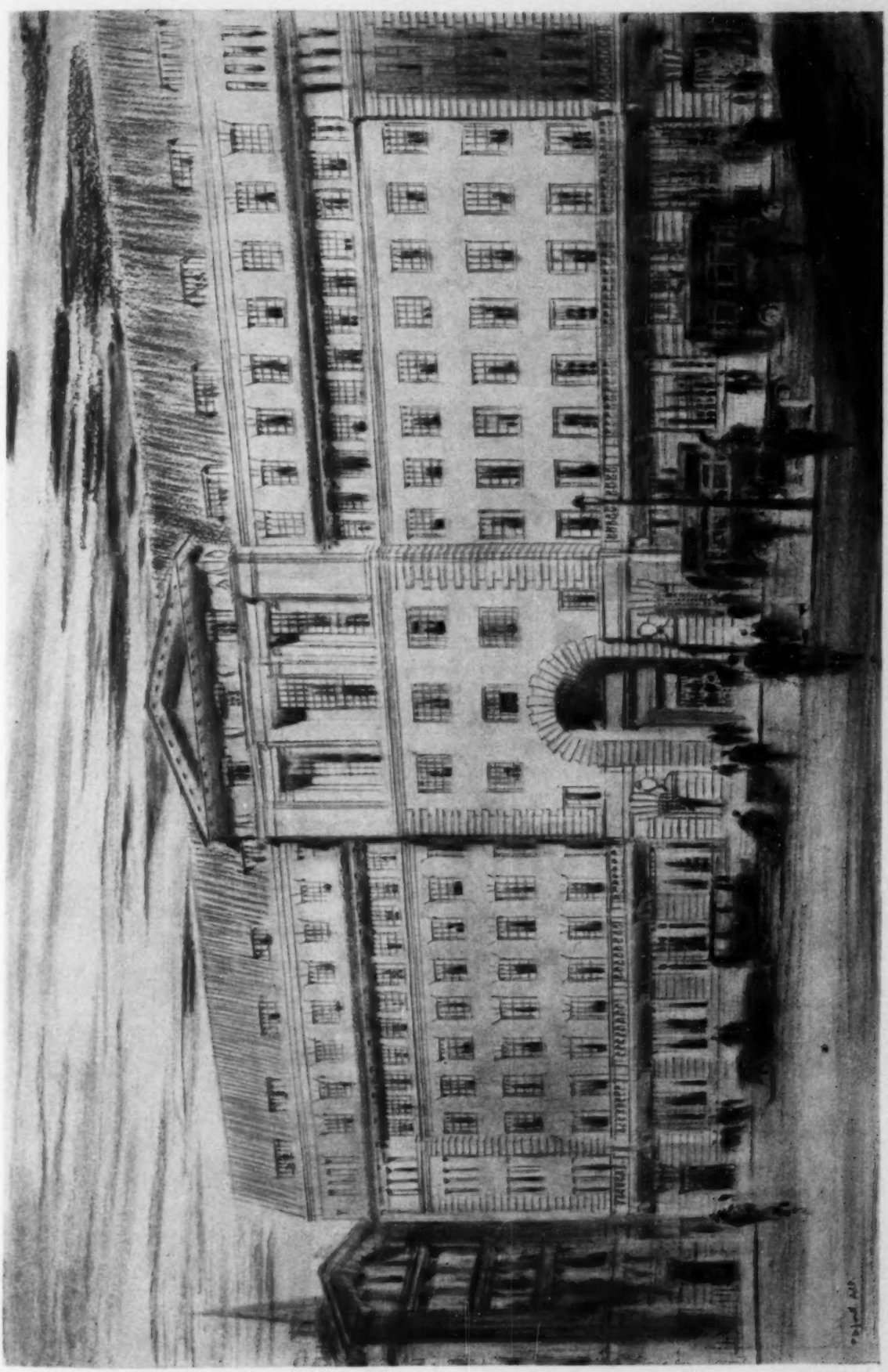
New Premises of the Commercial Union Assurance Company, Cornhill, E.C.: Board Room.

Sir Aston Webb, R.A., & Son, Architects.



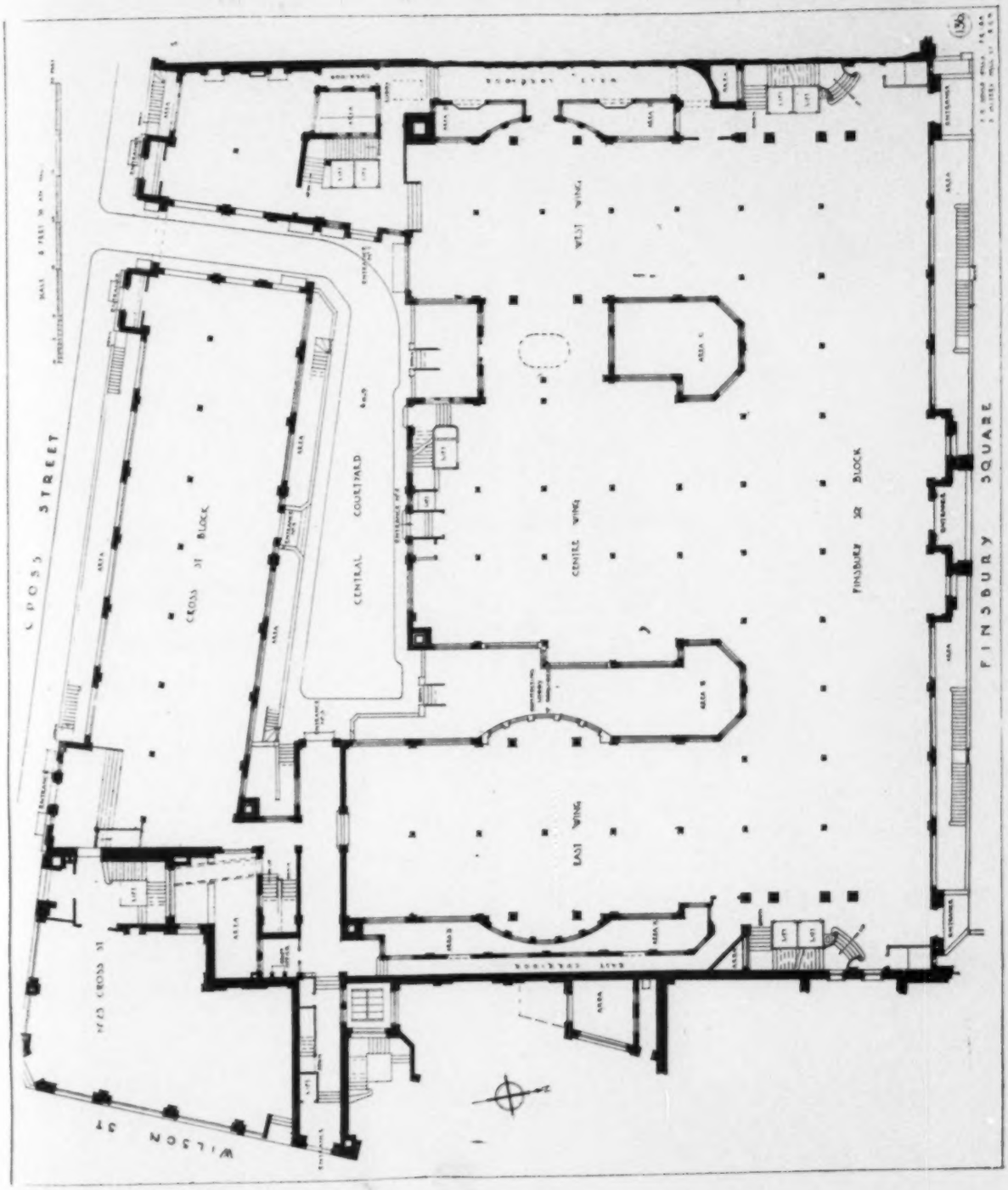
New Office Building, Finsbury Square, E.C. : Part of Cross Street Elevation.

Sir Giles Scott, R.A., F.R.I.B.A., and Mr. F. R. Gould Wills, F.R.I.B.A., Associated Architects.

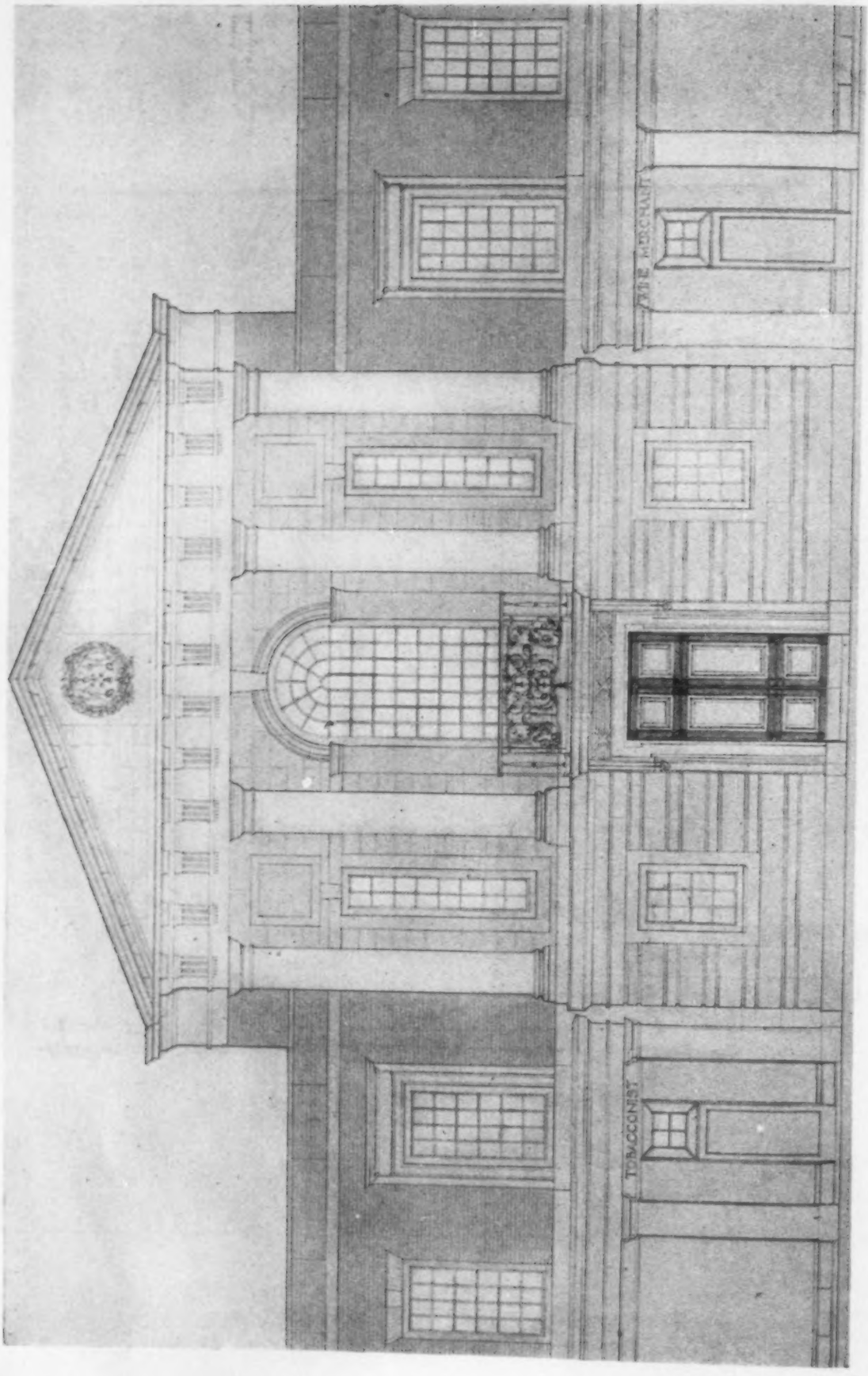


New Office Building, Finsbury Square, E.C.

SIR GILES SCOTT, R.A., F.R.I.B.A., and MR. F. R. GOULD WELLS, F.R.I.B.A., Associated Architects.

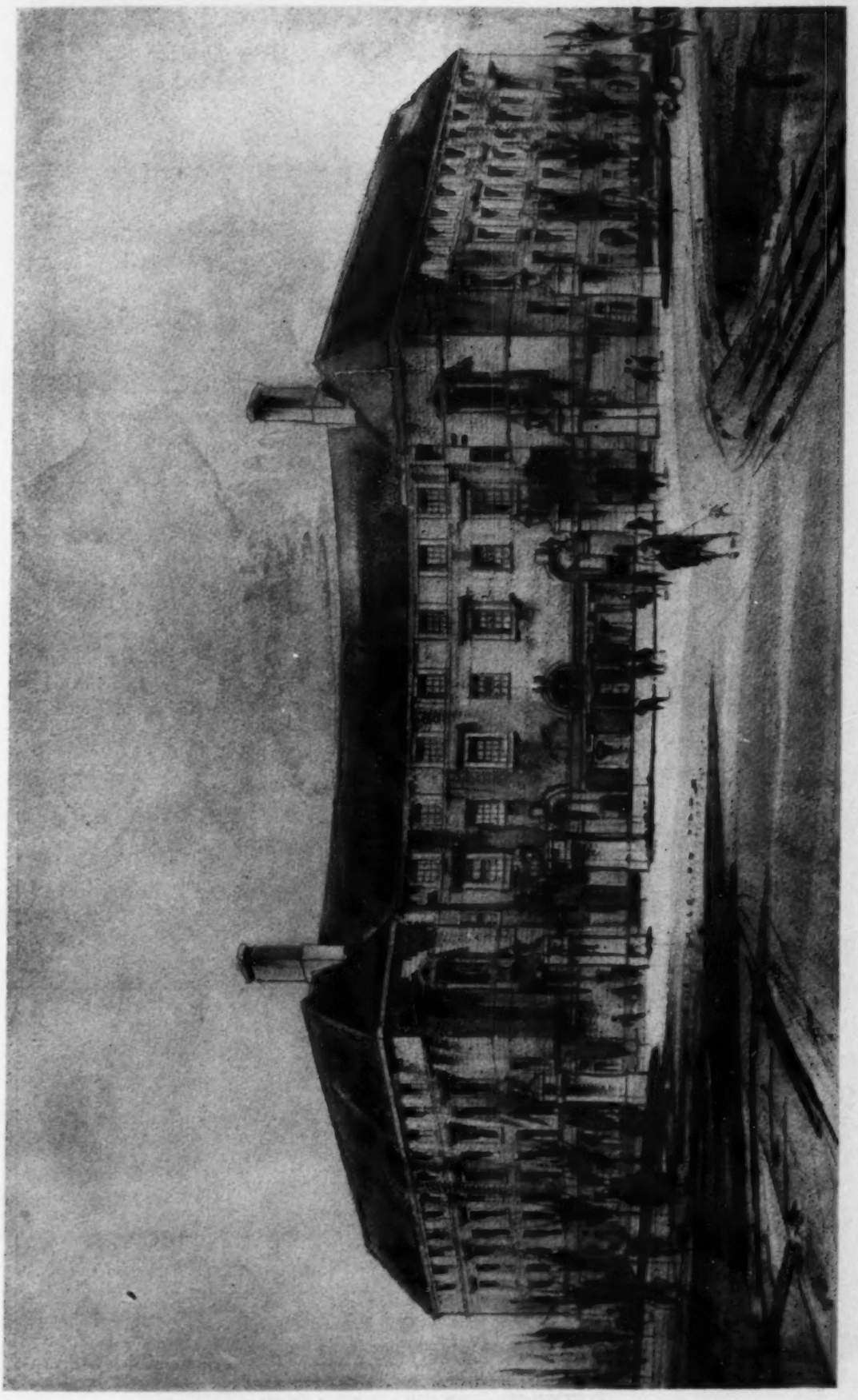


New Office Building, Finsbury Square, E.C.: Ground Floor Plan.
Sir Giles Scott, R.A., F.R.I.B.A., and Mr. F. R. Gould Wills, F.R.I.B.A., Associated Architects.



A Competition Design.

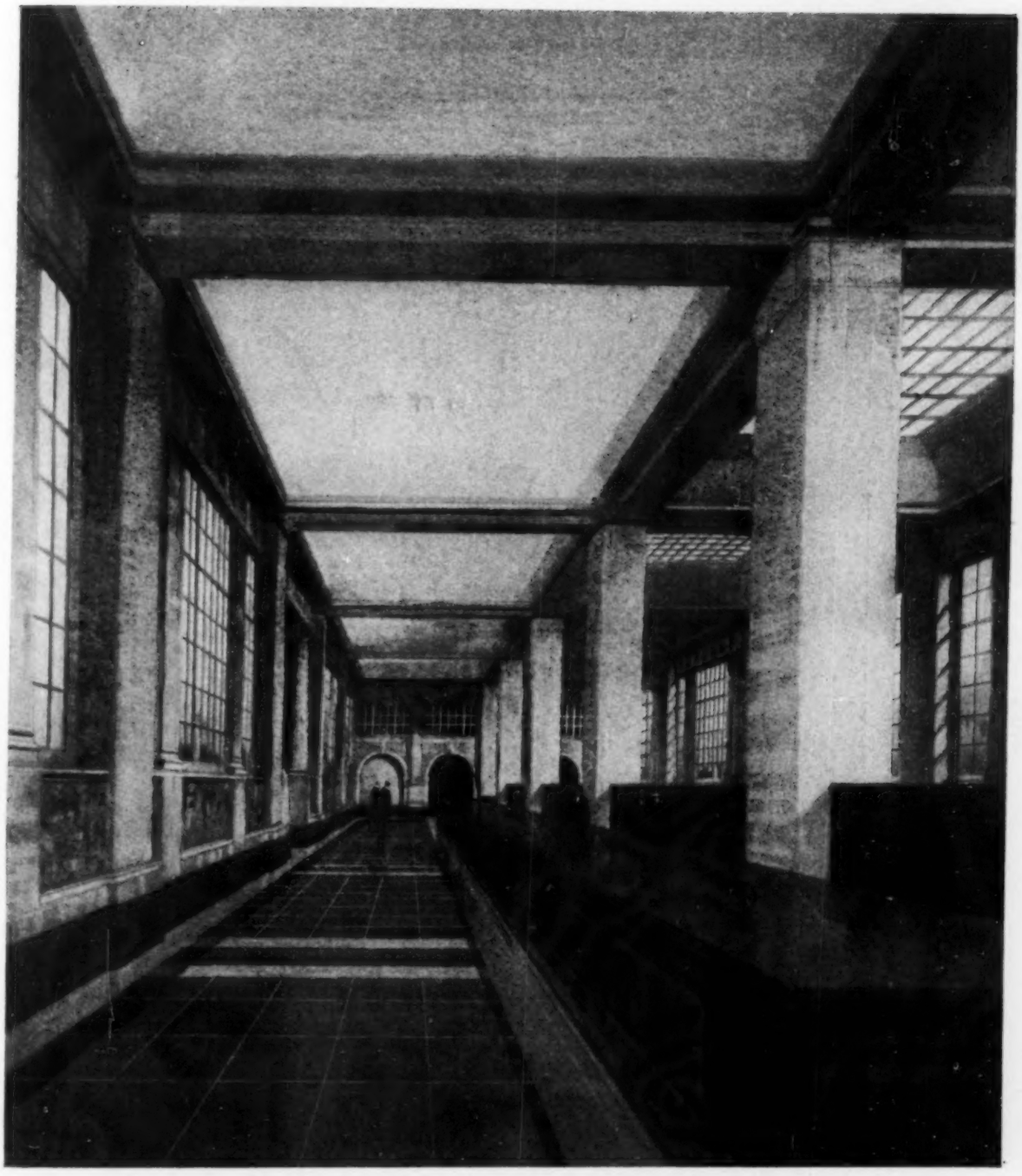
By Mr. W. Curtis Green, A.R.A., F.R.I.B.A., and Partners.



New Offices for the Somerset County Council, Taunton.
Mr. E. Vincent Harris, Architect.

Peterborough Town Hall: From a Model.

Mr. E. Berry Webber, A.R.I.B.A., Architect.



New Premises for the Midland Bank, Leadenhall Street, E.C.

Sir Edwin Lutyens, R.A., F.R.I.B.A., and Messrs. Whinney, Son, and Austen Hall, Associated Architects.

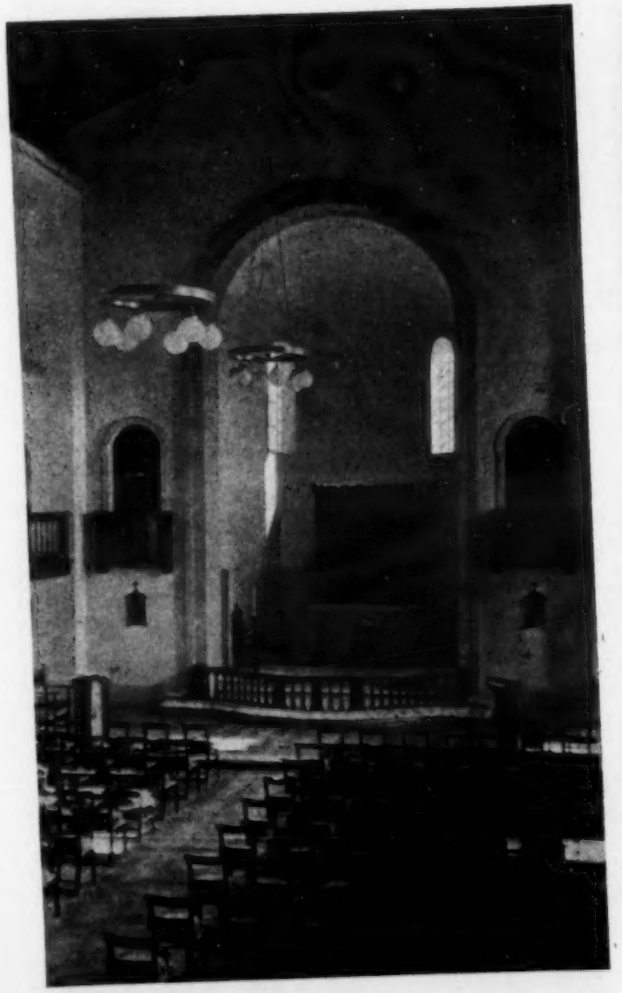
View Across Garden.

General View.

View from Sunken Lane on East of Garden.

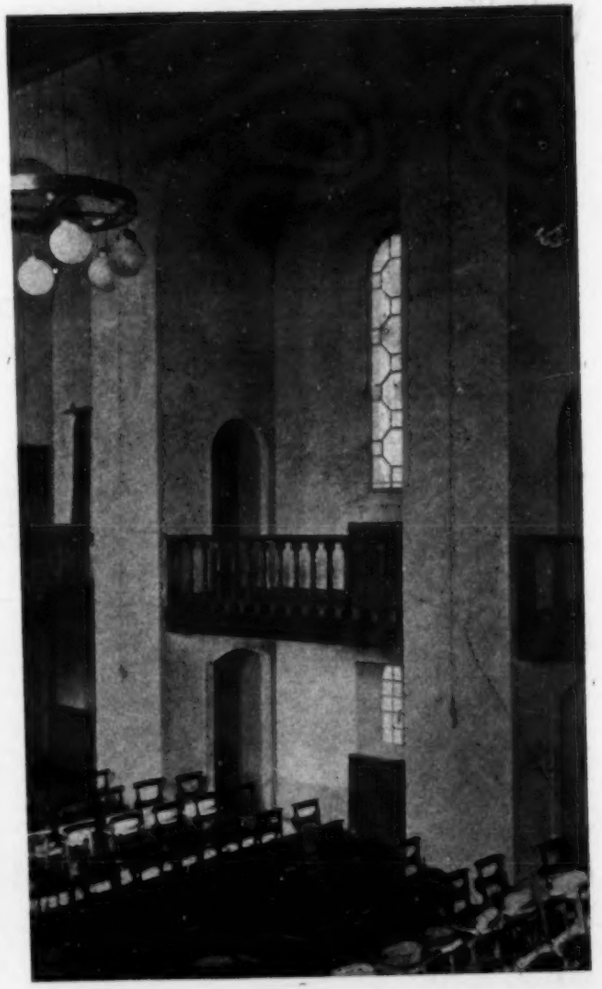
English Church at Alassio, Italy.

Professor Wm. G. Newton and Partners, Architects.



Sanctuary, with Pulpit and Reading Balcony on either Side.

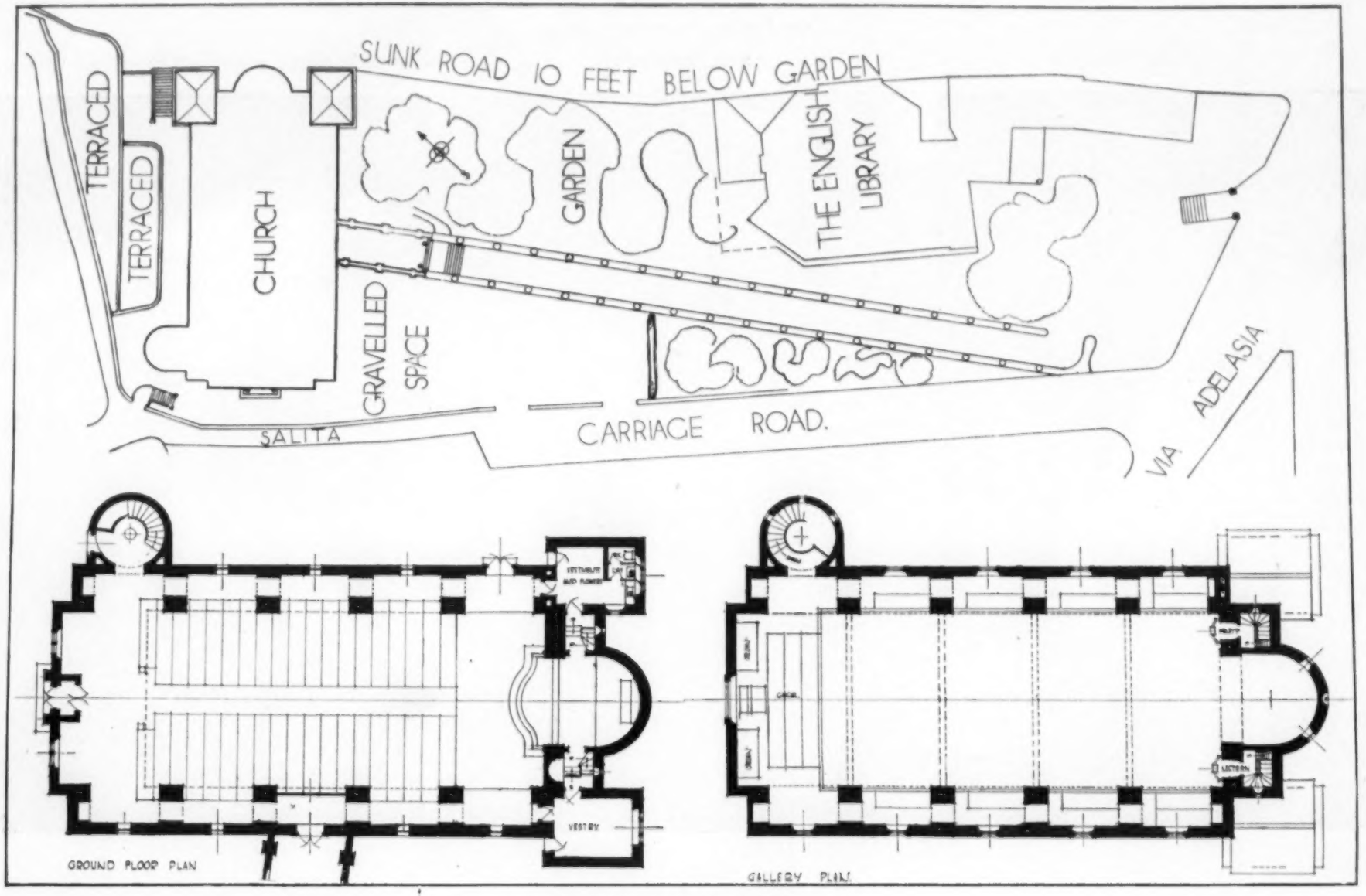
Porch, from Pergola.



A Bay of the Nave.

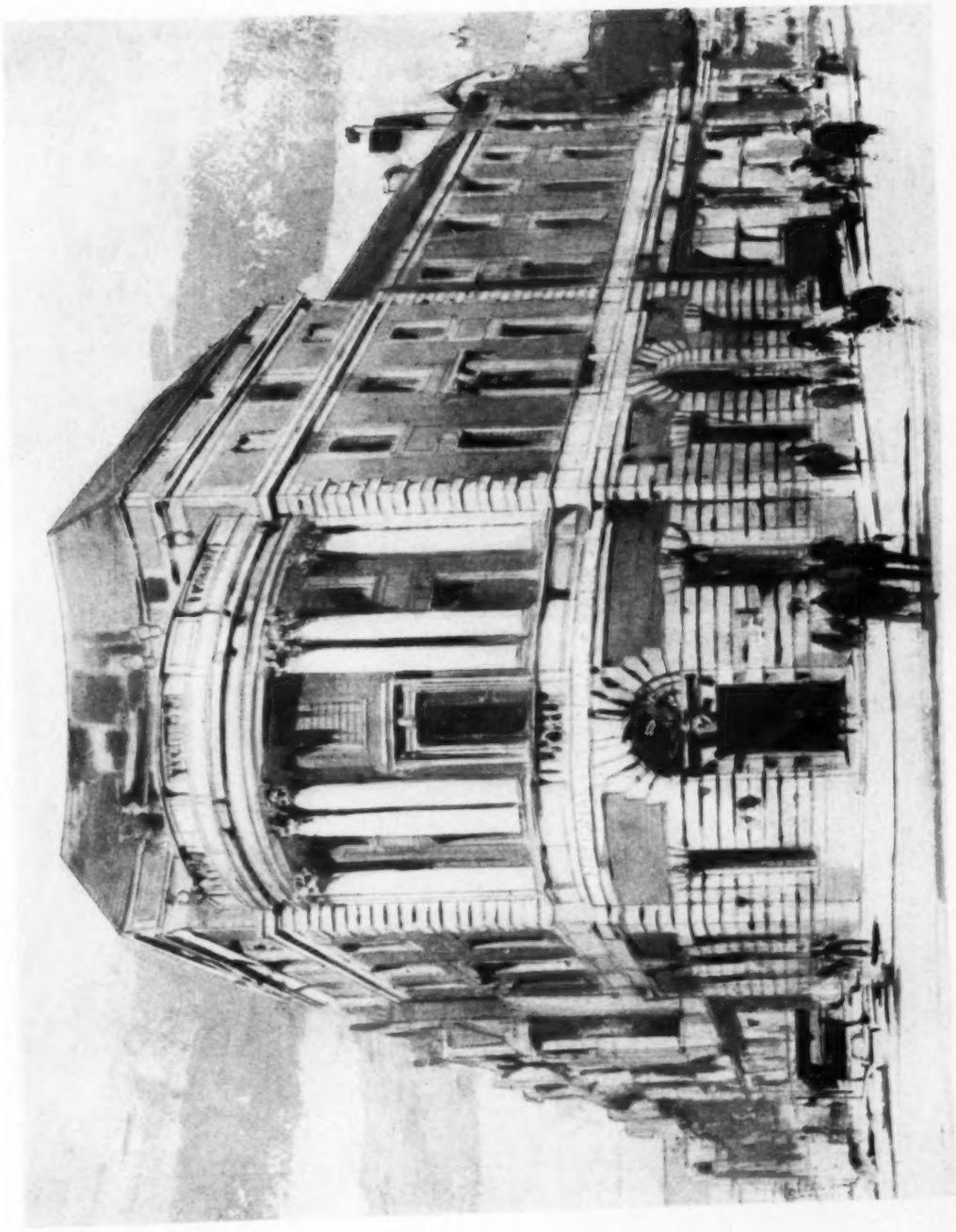
English Church at Alassio, Italy.

Professor Wm. G. Newton and Partners, Architects.



English Church at Alassio, Italy.

PROFESSOR WM. G. NEWTON AND PARTNERS, Architects.



National Provincial Bank, Eastbourne.

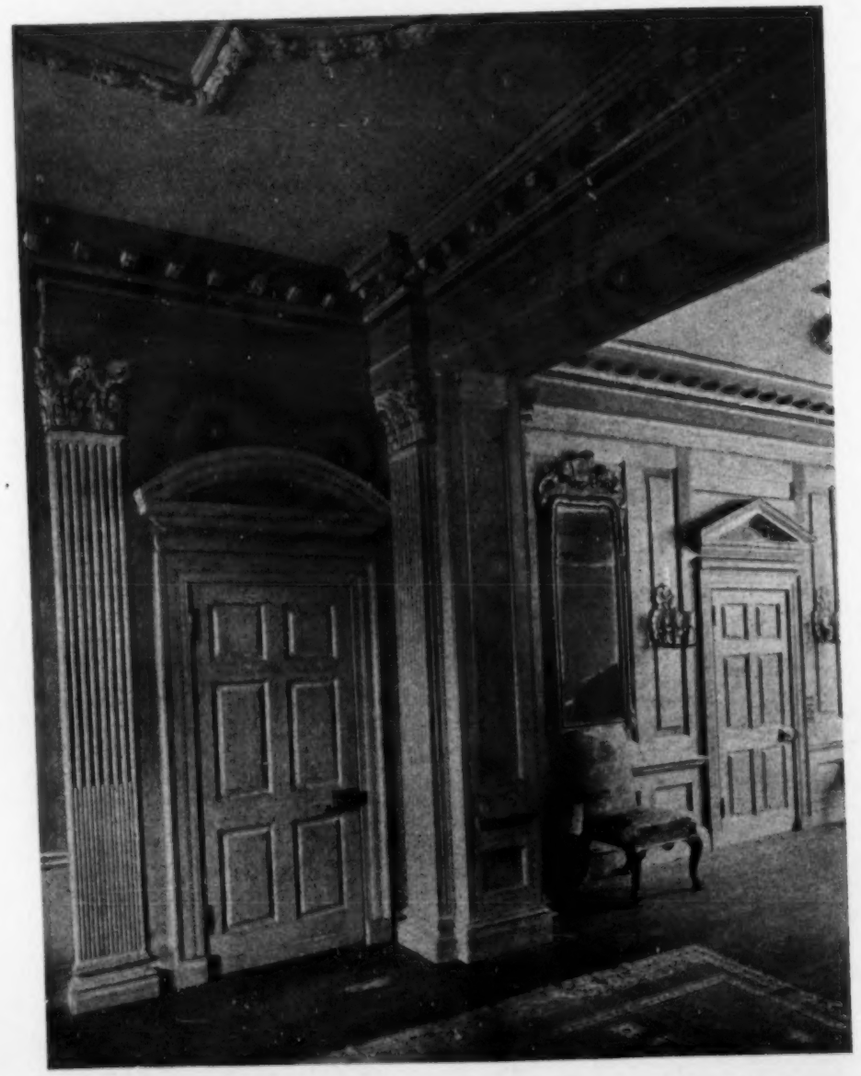
MESSRS. F. C. R. PALMER and W. F. C. HOLDEN, FF.R.I.B.A., Architect and Assistant Architect to the Bank.

Drawing Room.

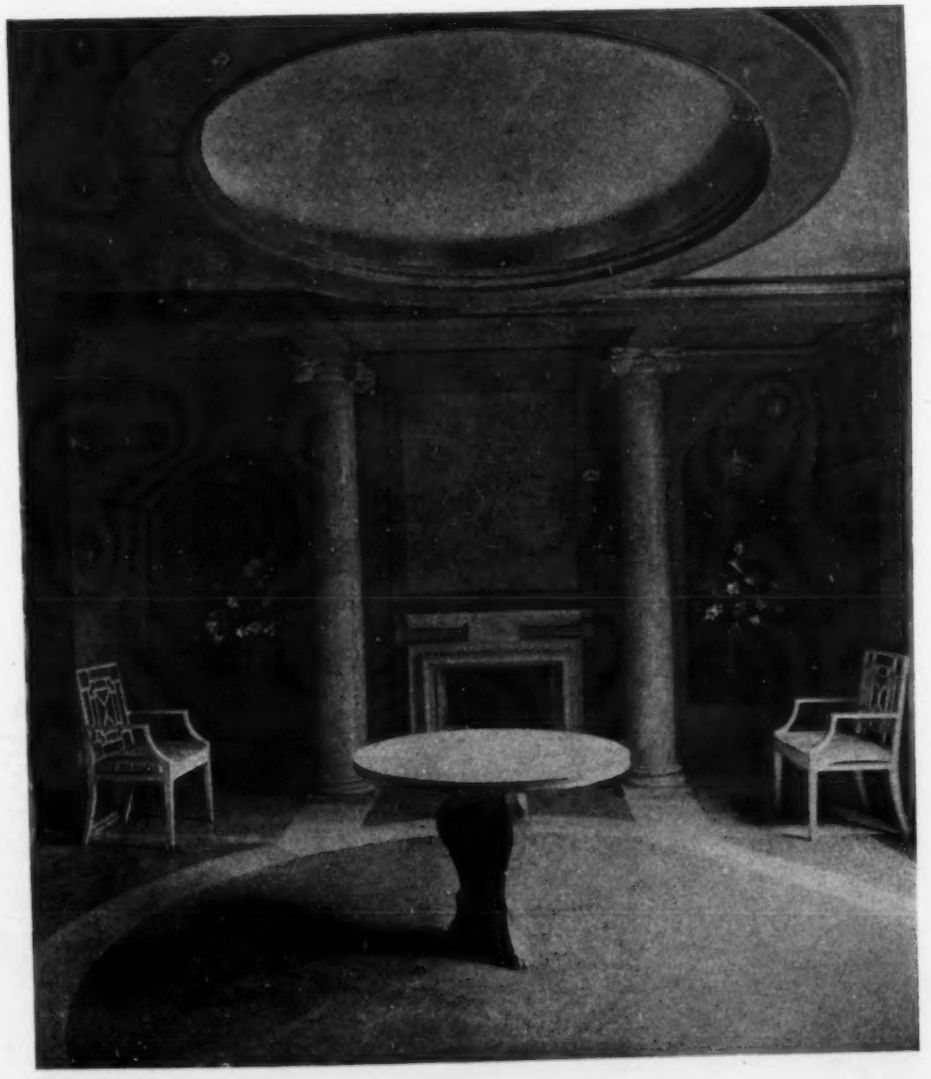
Garden Room.

House, No. 70, Grosvenor Street, W.

Mr. Oliver Hill, F.R.I.B.A., Architect.



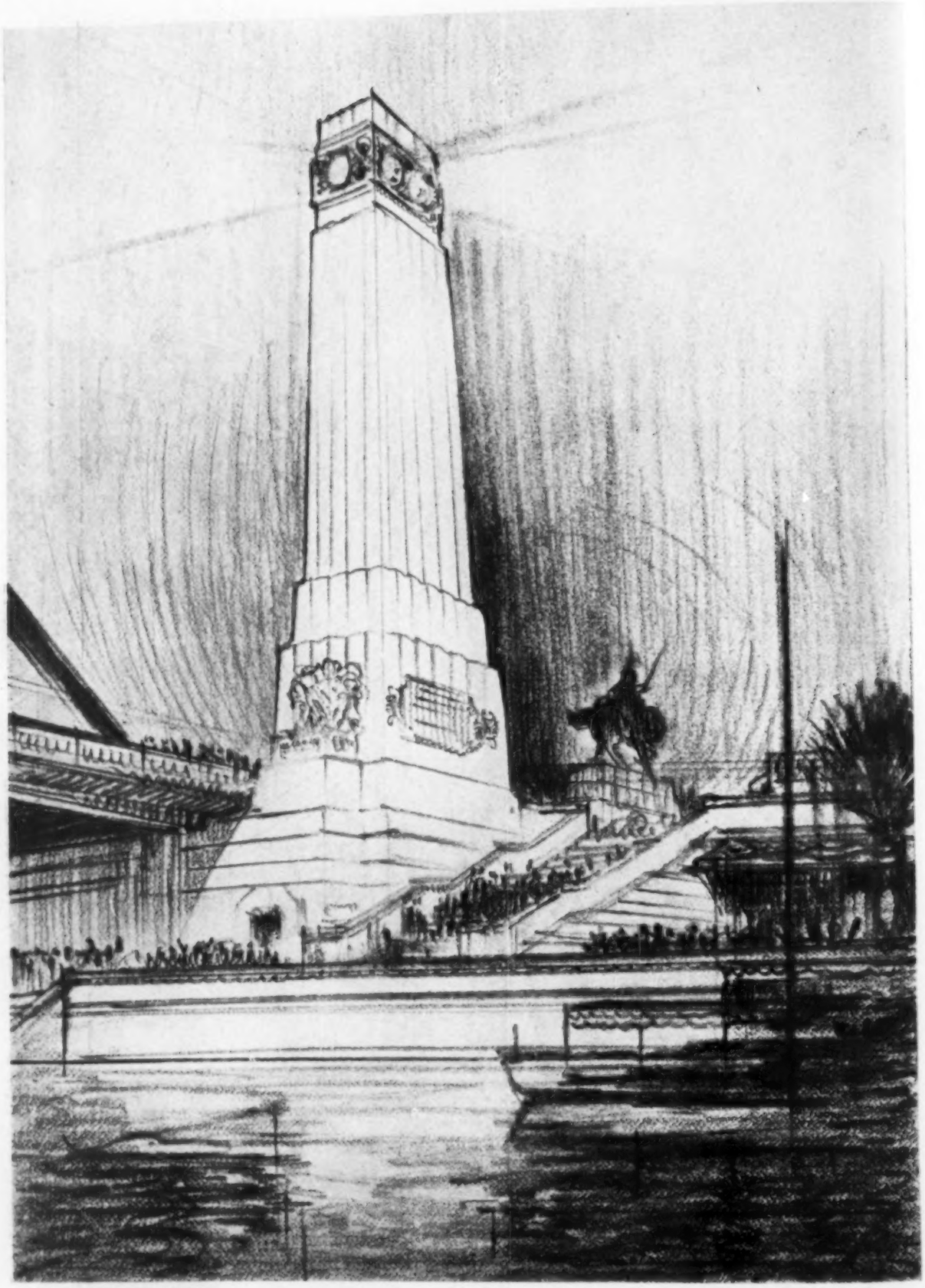
DRAWING ROOM.



GARDEN ROOM.

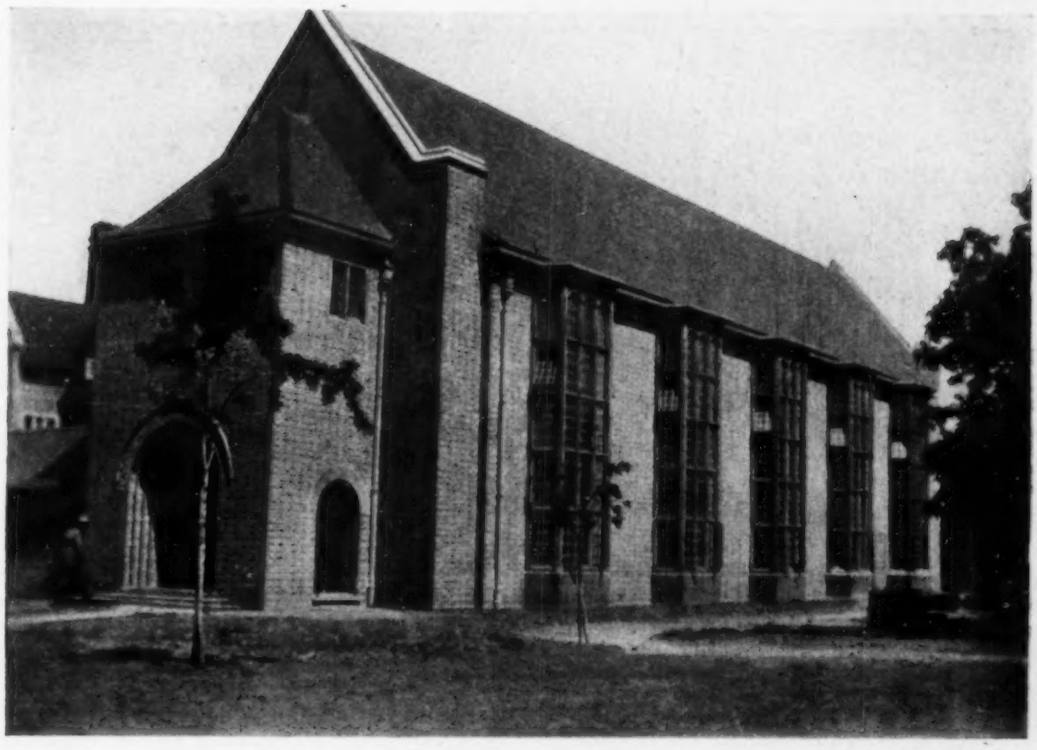
House, No. 70, Grosvenor Street, W.

MR. OLIVER HILL, F.R.I.B.A., Architect.



Bangkok Memorial Bridge : Sketch of Pylon.

Sir John Burnet and Partners, Architects.



General View of Exterior.

View Looking West.

Chapel for the Sisters of Bethany, Bournemouth.

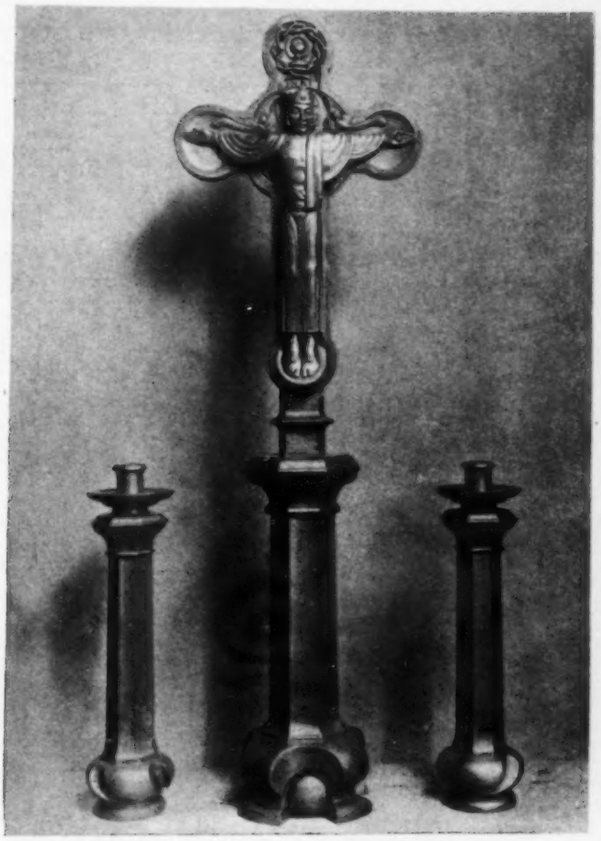
Professor Wm. G. Newton and Partners, Architects.

View Looking West.

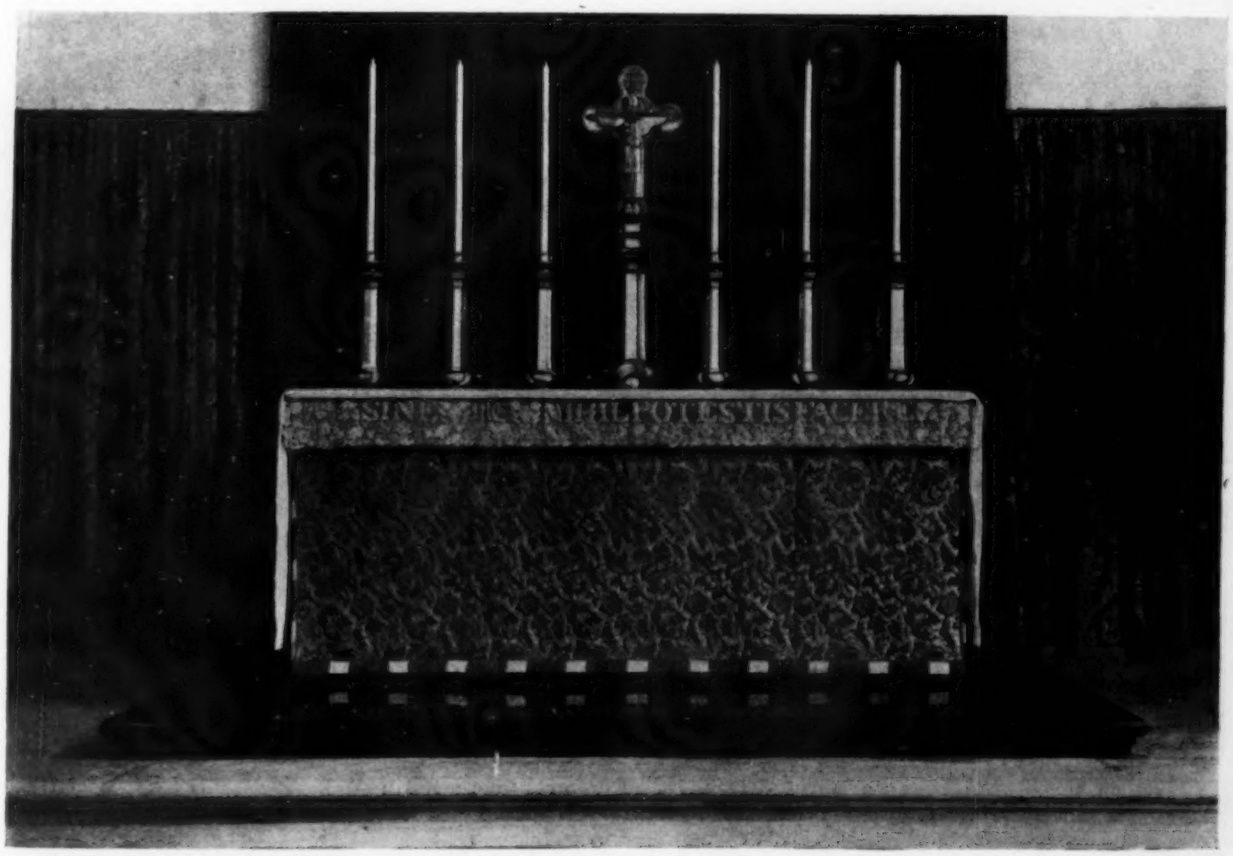
View Looking East.

Chapel for the Sisters of Bethany, Bournemouth.

Professor Wm. G. Newton and Partners, Architects.



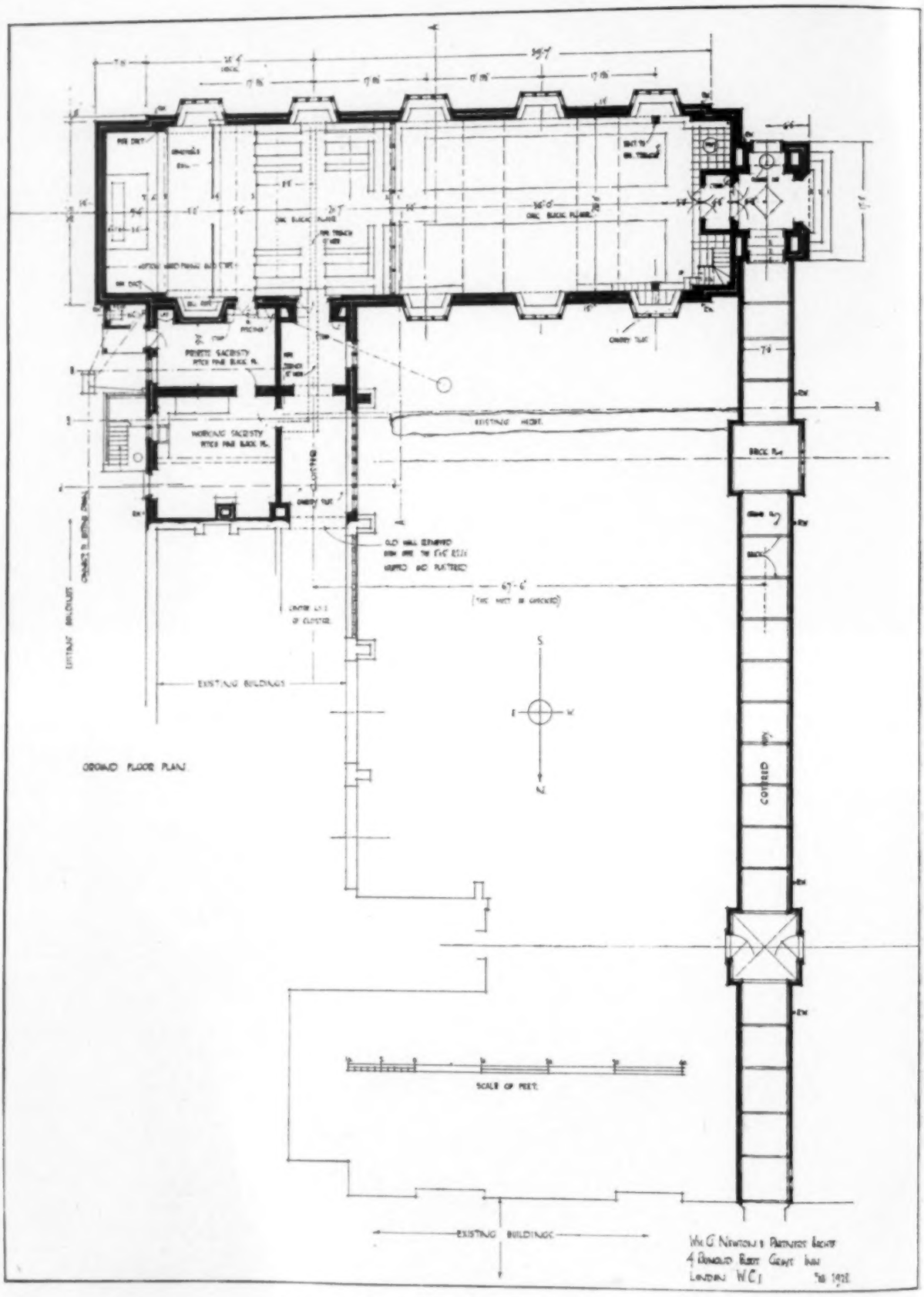
DETAIL OF ALTAR FIGURE AND CANDLEHOLDERS.
By MR. ALAN DURST.



THE ALTAR.

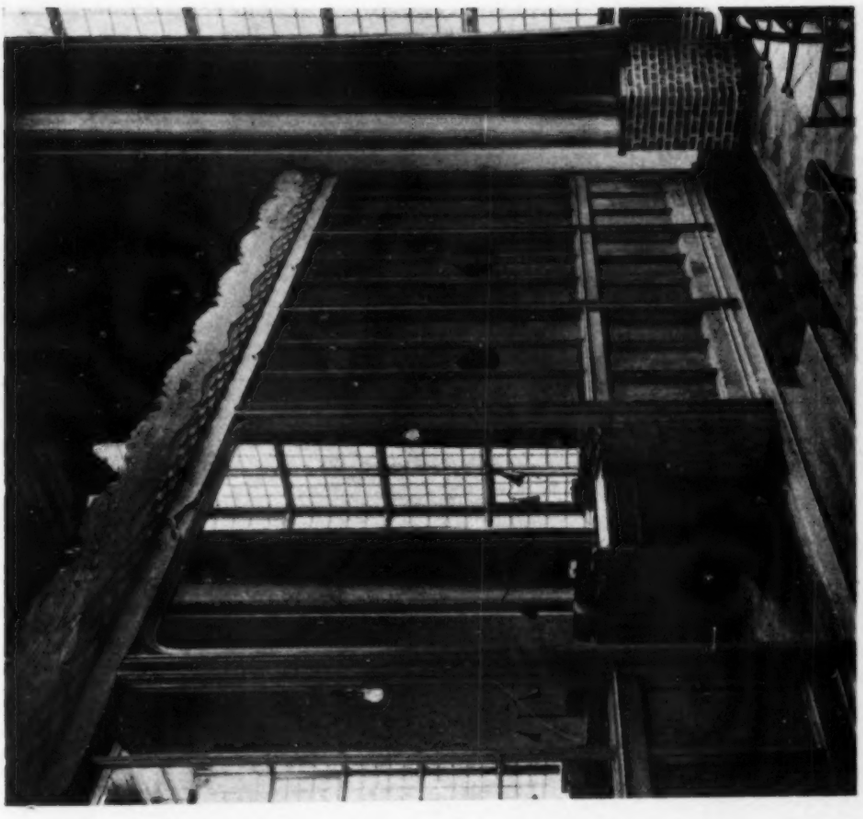
Chapel for the Sisters of Bethany, Bournemouth.

PROFESSOR WM. G. NEWTON AND PARTNERS, Architects.

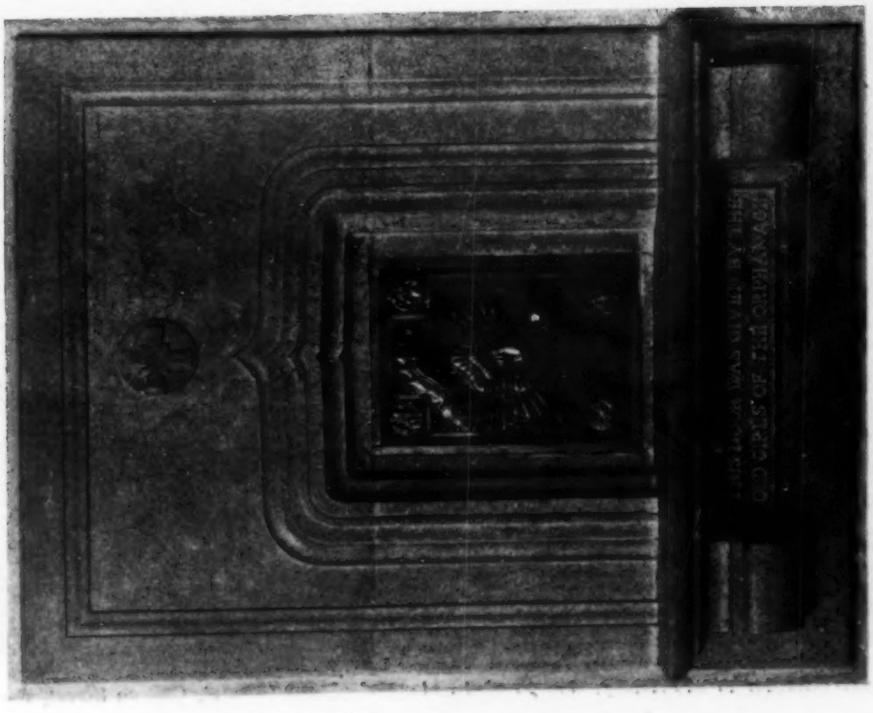


Chapel for the Sisters of Bethany, Bournemouth.

Professor Wm. G. Newton and Partners, Architects.



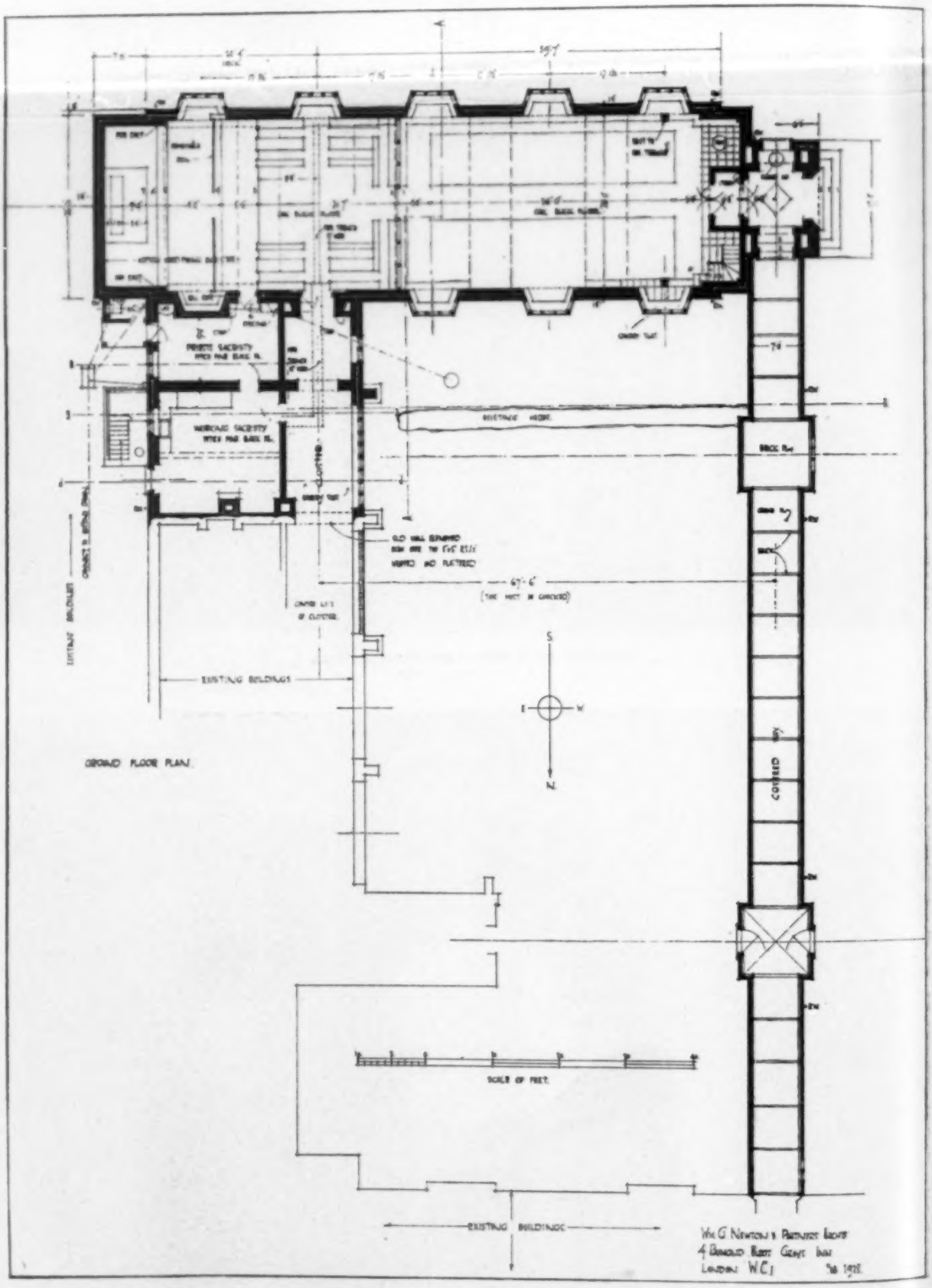
Detail of Screen.



Commemorative Panel.

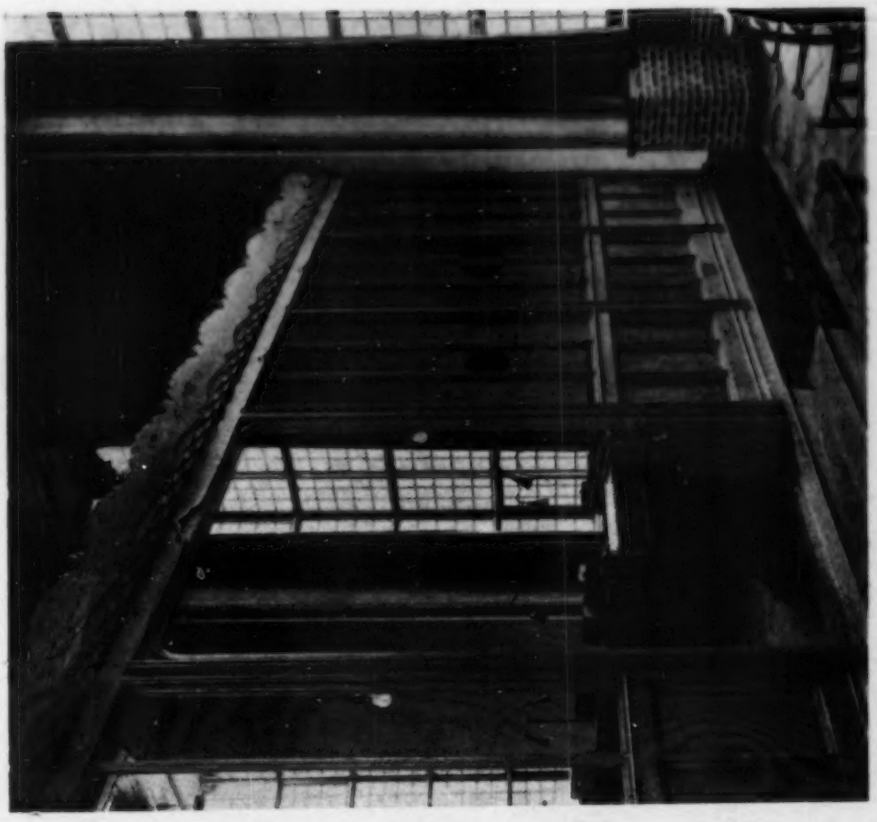
Chapel for the Sisters of Bethany, Bournemouth.

Professor Wm. G. Newton and Partners, Architects.

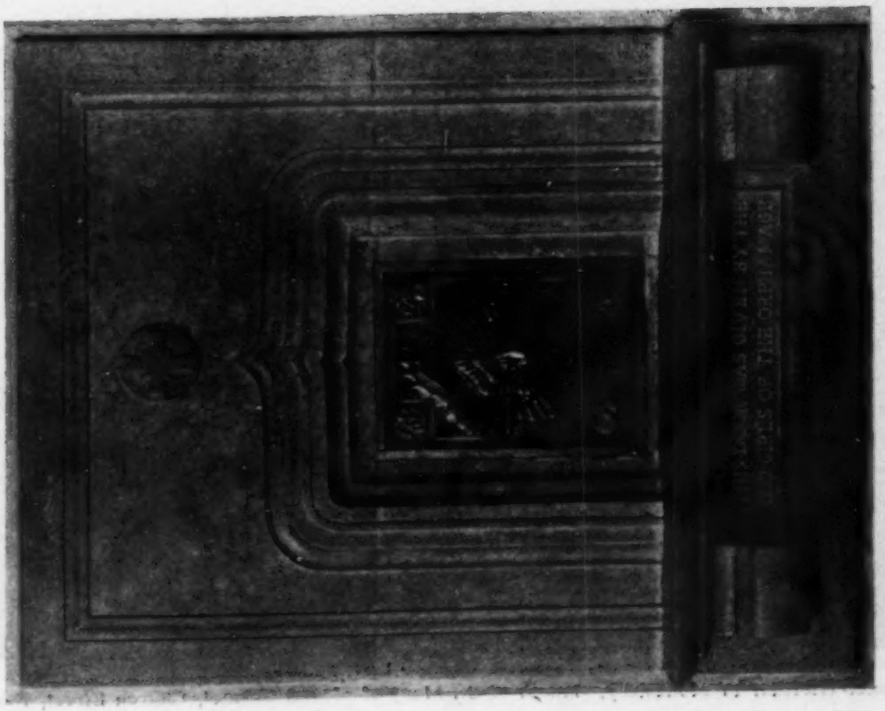


Chapel for the Sisters of Bethany, Bournemouth.

PROFESSOR WM. G. NEWTON AND PARTNERS, Architects.



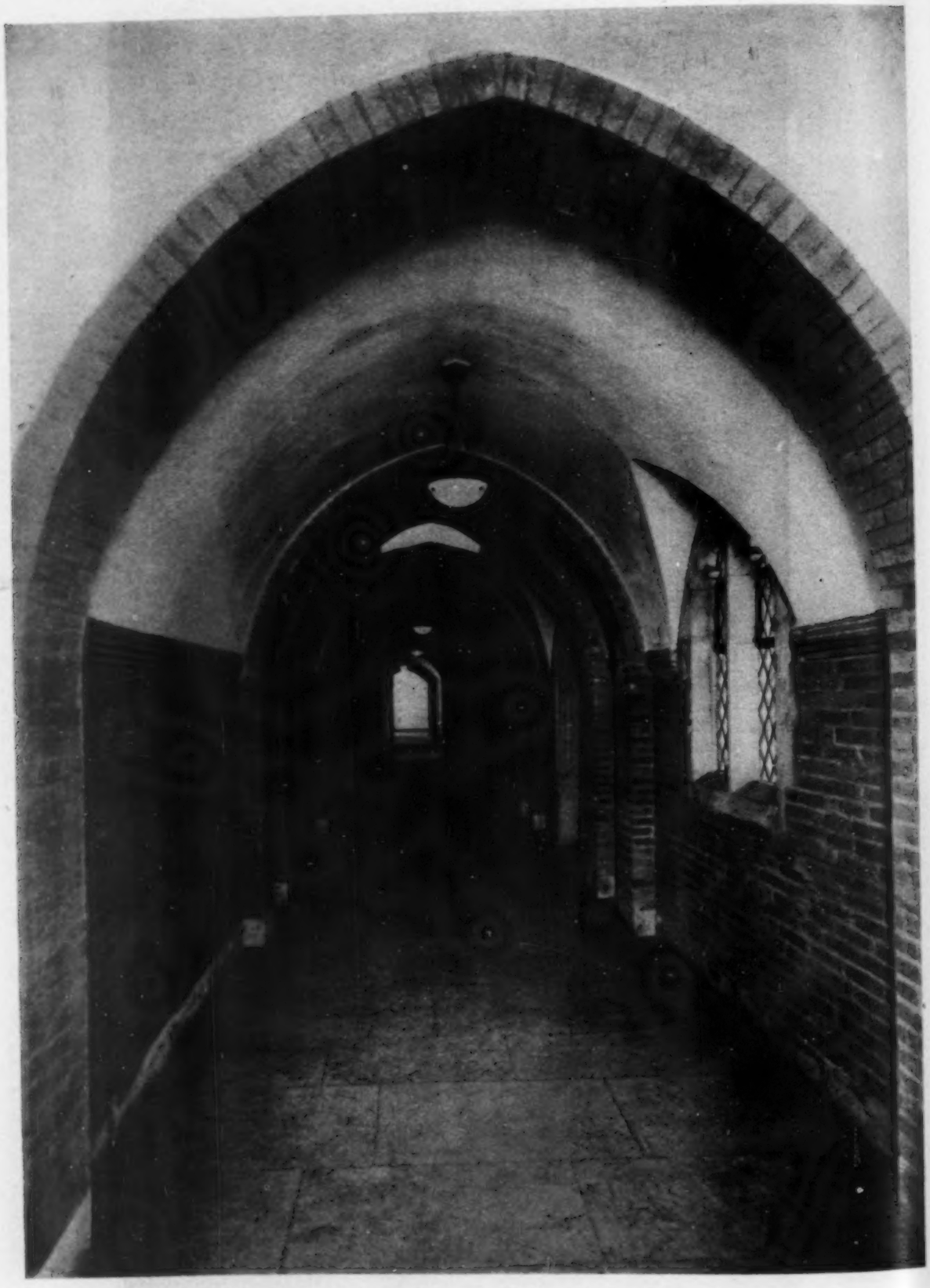
Detail of Screen.



Commemorative Panel,

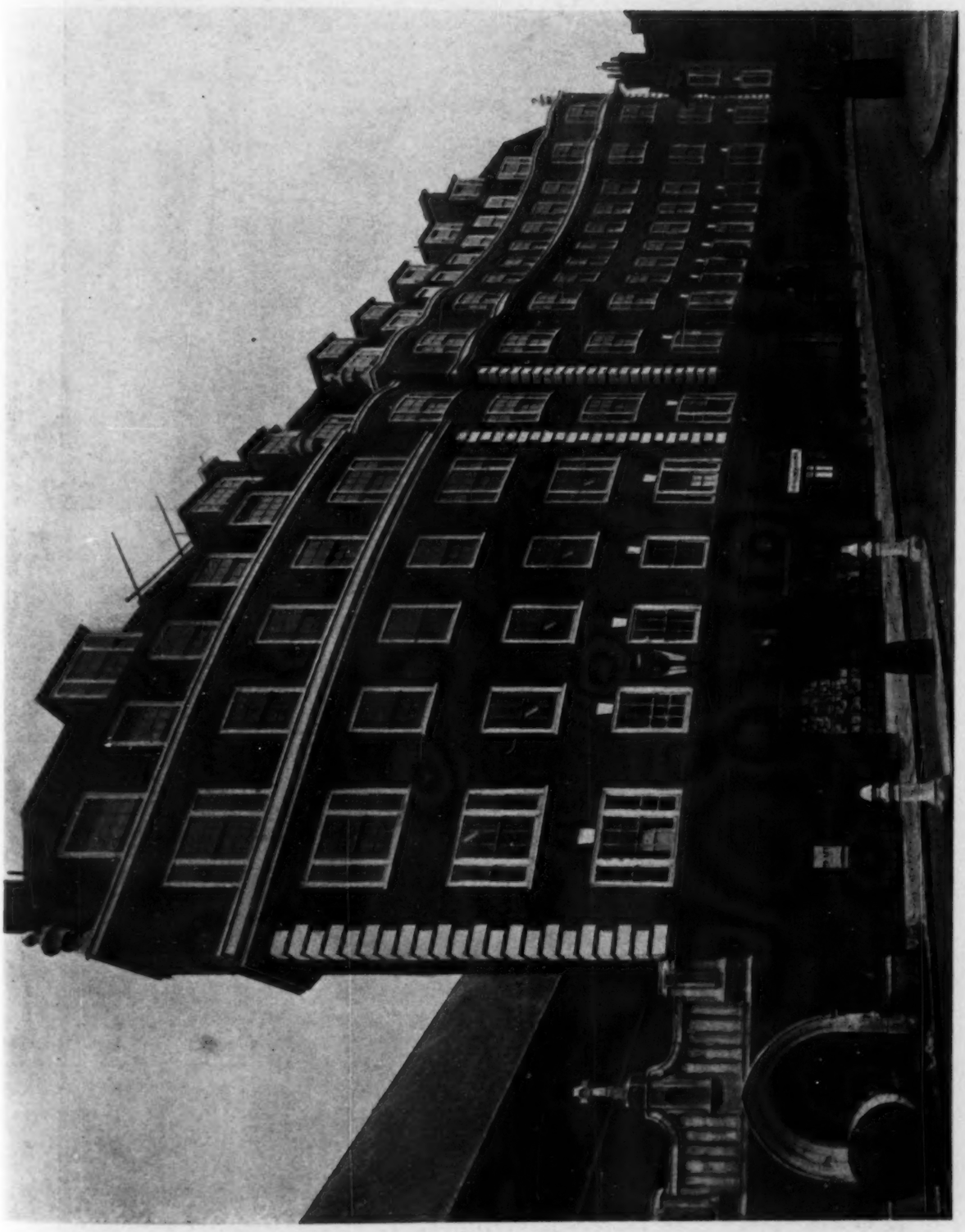
Chapel for the Sisters of Bethany, Bournemouth.

Professor Wm. G. Newton and Partners, Architects.

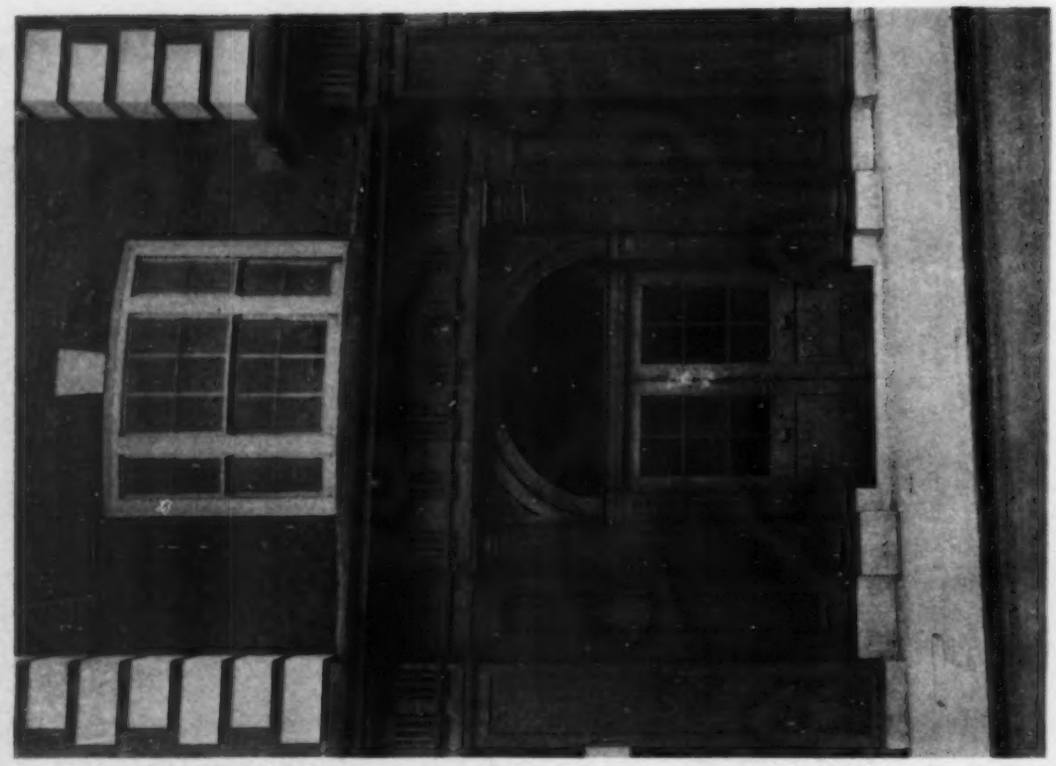


Cloister Corridor to Monastery, Church of St. Mary of Mount Carmel, Church Street, Kensington.

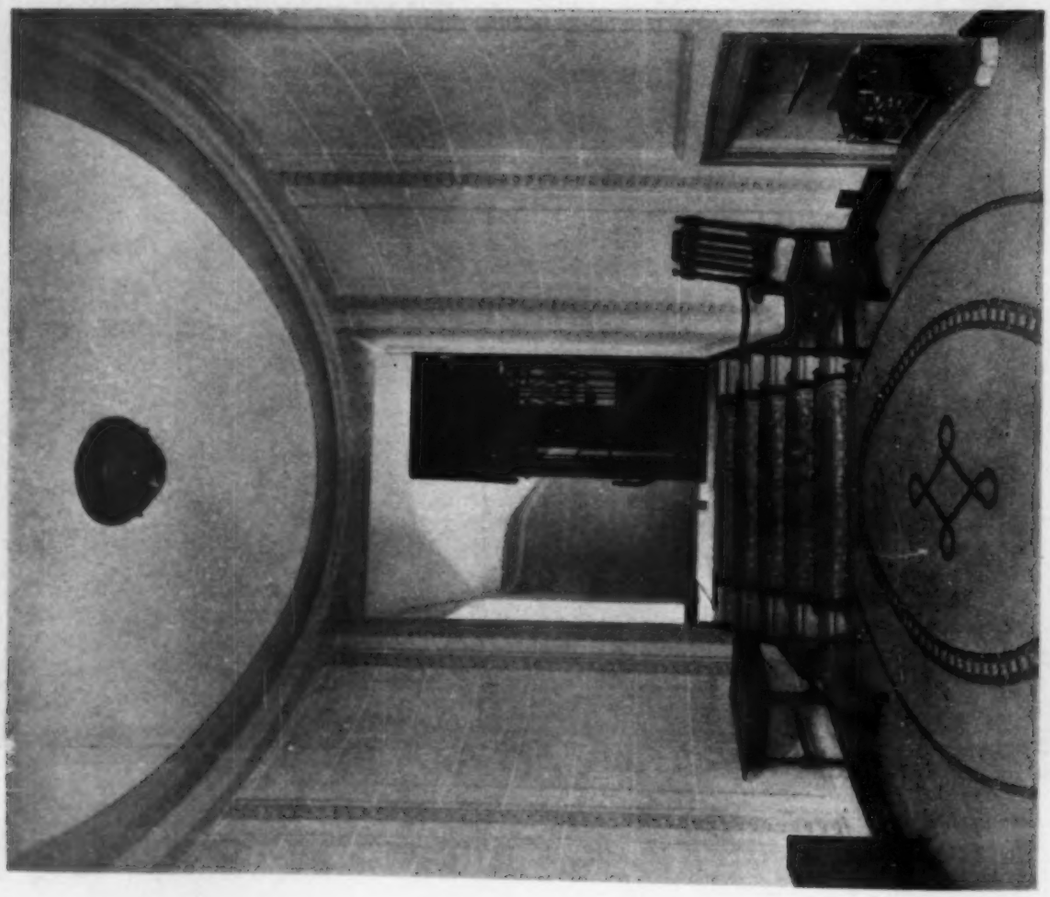
Messrs. Wills and Kaula, F. & A.R.I.B.A., Architects.



"Newton House," Church Street, Kensington.
Messrs. Wills and Kaula, F. & A.R.I.B.A., Architects.



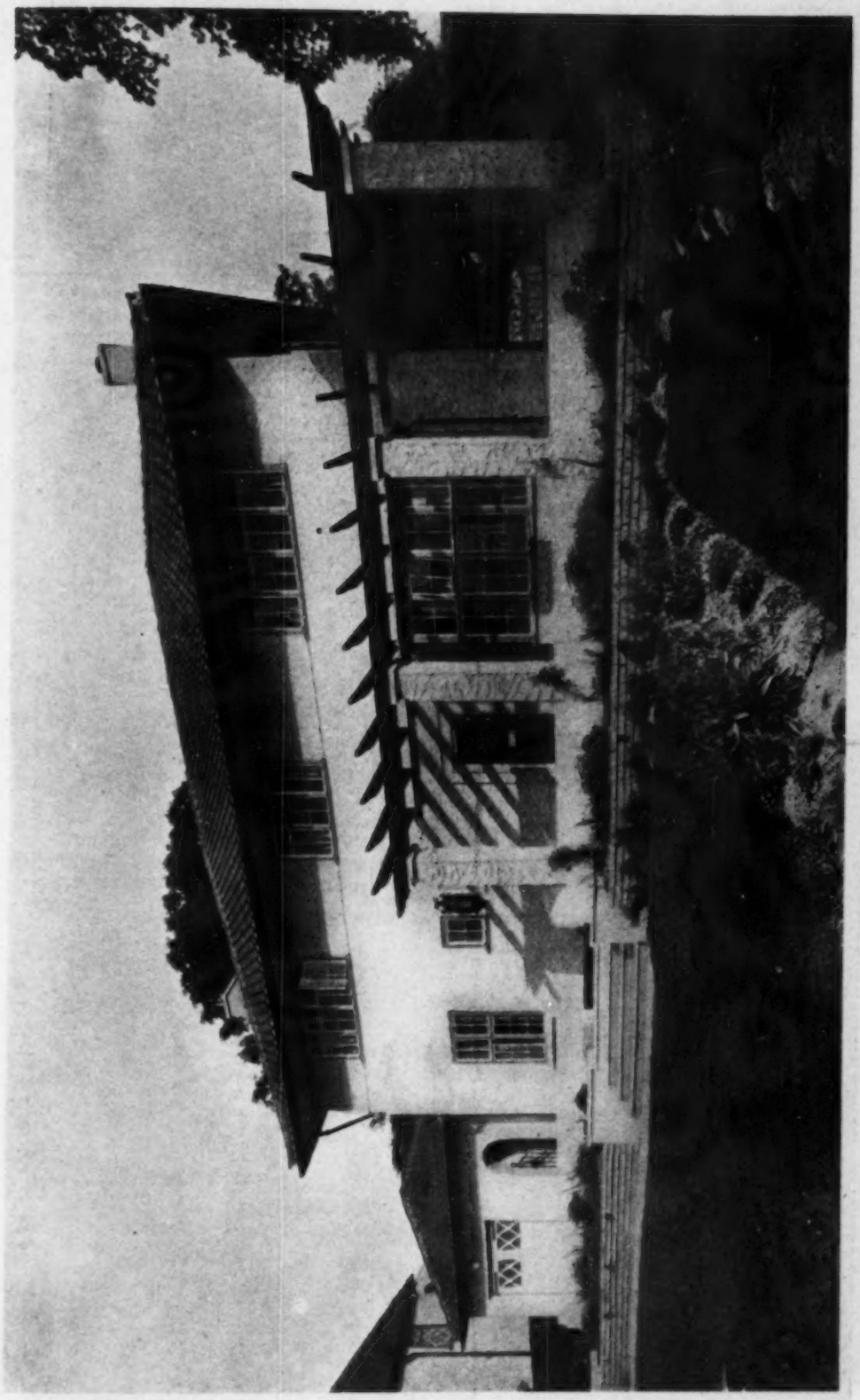
Detail of Entrance.



Entrance Hall.

"Newton House," Church Street, Kensington.

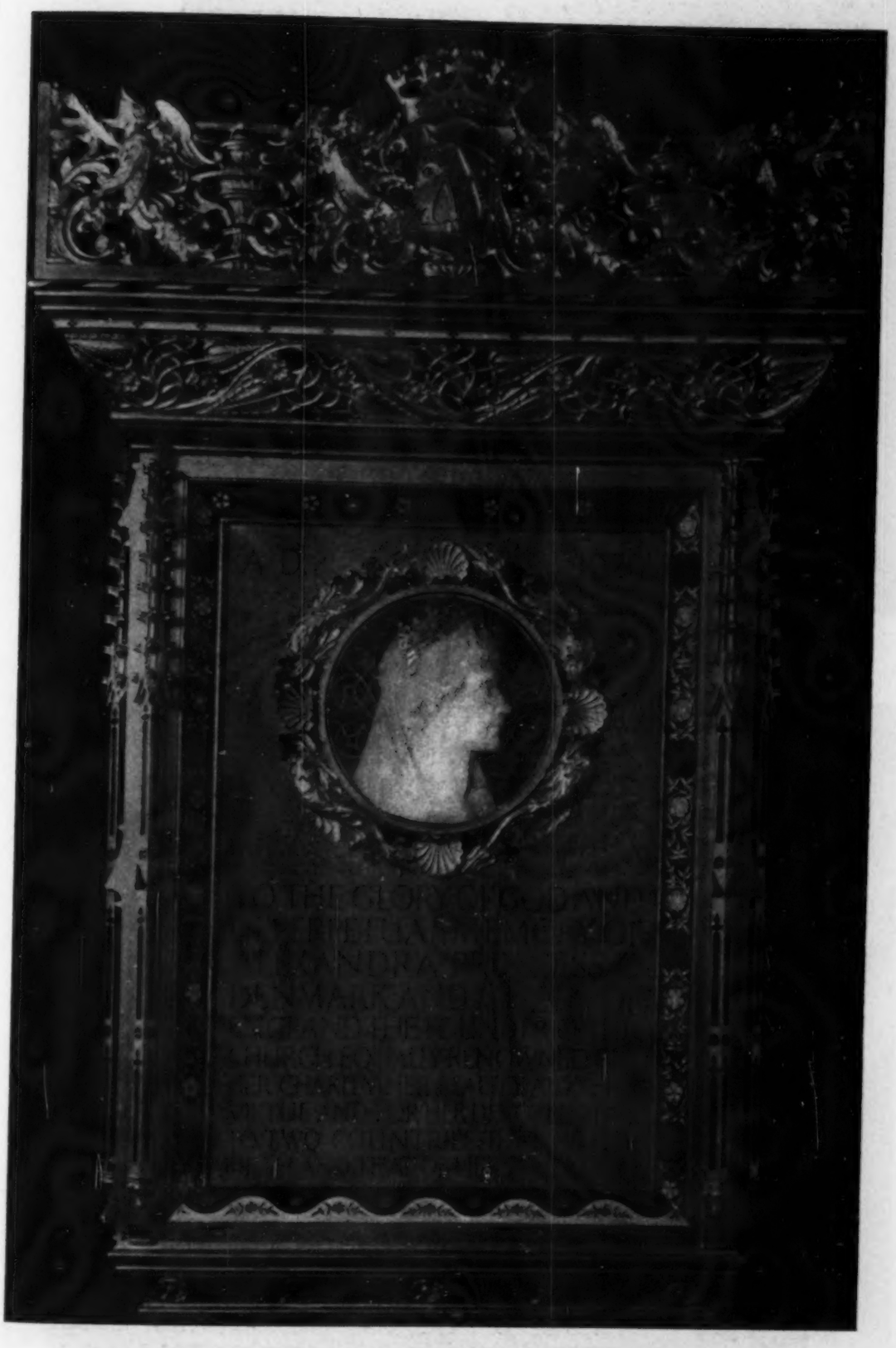
Messrs. Wills and Kaula, F. & A.R.I.B.A., Architects.



"Bankyfield," Home Park Road, Wimbledon.
Mr. E. Berry Webber, A.R.I.B.A., Architect.

Queen Alexandra Memorial, St. Alban's Church, Copenhagen: Cartoon.

By Mr. Geoffrey Webb.



Queen Alexandra Memorial, St. Alban's Church, Copenhagen.

By Mr. Geoffrey Webb.

Arms of King Christian in Stained Glass.

Detail of Canopy in Stained Glass.

Queen Alexandra Memorial, St. Alban's Church, Copenhagen.

By Mr. Geoffrey Webb.

GARDEN FRONT.

FRONT AND SIDE ELEVATIONS.

House at Pachesham Park Estate, Leatherhead, Surrey.

MESSRS. W. E. RILEY AND GLANFIELD, FF.R.I.B.A., Architects.

Aldsworth Farm, Hants.

Messrs. W. E. Riley and Glanfield, FF.R.I.B.A., Architects.

THE LAND OF THE CID

By D. M. Mickleth waite, B.A.(Oxon.).

I.—BURGOS CATHEDRAL.

Burgos is the nucleus of modern Spain, for this proud city was once the capital of Castile, and to speak Castilian is to speak the Spanish language. The Spanish race includes Iberians, Visigoths, Romans, even Greeks, and last, but not least, the Moors. By the expulsion of the Moors Spain became definitely Western; the Cid drove the Moors out of northern Spain, and the Cid's home was in Burgos. On the mossy monument, not old but neglected, runs the inscription that on this site stood the house where was born—

". . . Rodrigo Diaz de Bivar, the beloved Cid (a Moorish title), the champion . . . ."

One or two Moorish archways still testify to the Moorish tradition, but through their horseshoes now swarm the prattling hordes of children and the pattering hoofs of laden donkeys. The heyday of Burgos was passed centuries ago. The paltry relic of a once noble Castle has seen better days; here in the eleventh century the Cid was married to Ximena; here the fierce Fernan Gonzalez wrestled for the independence of Castile; and here also was Prince Edward (later Edward I) of England united to the Castilian Eleanor. Ever ready to help the stranger if he will learn their language, the Burgalese boast of little French and of no English at all.

A hundred miles or so from the French border stands Burgos, nearly 3,000 ft. above sea level, and one of the great landmarks on the journey from Irun to Madrid. Surrounding the city are rolling sweeps of parched pasture, low hills devoid of crags, with few trees, where also the song of birds is hardly heard. Short of both shade and water, Burgos suffers great heat in the summer, I believe. In winter, the Arlanzon floods, and icy winds sweep across the city; in autumn, when I visited Burgos, the days were hot but the evenings were cool. Amidst a tortured and lifeless countryside stands this memorial to a former greatness, presenting a stony indifference to Time and a solid front to the invader from the north; archiepiscopal Burgos contains soldiers as well as priests.

Conspicuous above all else as the traveller approaches Burgos are the towers of the Cathedral, and particularly those twin western spires, fretted and crocketed with a savagery which is constantly arresting. Through their apertures rage the winds of winter, and always the yellow twilight gives to their silhouette an appearance less of an admonition to look heavenwards than of two swords with ragged edges, once keen, pointed aloft. Remove the late ornament from Burgos Cathedral and there is left a specimen of French Gothic architecture of the thirteenth century. Give the Cathedral an ordered symmetry, detach it from history and romance, and most of the Spanish character has disappeared. It is in these respects that its Spanish features lie and in which it is interesting.

The Spanish caballero was primarily a warrior, and the serious task of wresting the Peninsula from the Moors was not completed until the fifteenth century. Perhaps for this reason native art, on the whole, developed late in Spain, and Spanish features are chiefly observable in details.

As in other Spanish cathedrals, the choir or "Coro," at Burgos is not structural. Located as a little island within the cruciform plan, it is connected to its complement, the "Capilla Mayor," by a space screened off by two huge metal grilles called "rejas" which occur in the Crossing. The Coro occupies the east end of the nave. It is the Capilla Mayor, with its ambulatory, which constitutes the eastern arm of the Cathedral.

The devotional life of the Cathedral is centred within this enclosure; but in addition, the various side chapels, of which at Burgos there are over a dozen, independently attract a number of worshippers. The great open spaces of the Cathedral—the transepts and the west end of the nave—are principally used as a means of access to the Coro and to the various chapels. In many cases, those at Burgos are classical — in one instance, that of Sa. Tecla, in which the over-lavish decoration of Churriguera can be seen, the effect is most unpleasant. Yet these classical chapels, segregated and approached through grilles, do not interfere with the internal effect of the Cathedral as a whole.

Although the Coro, adorned externally with a somewhat inappropriate Corinthian Order, intrudes into the nave, the effect of the intrusion is more tolerable than might be supposed. The two rejas which connect the Coro to the Capilla Mayor are most lofty and massive; the eye is wearied as it attempts to establish the composition of baluster upon annulets, circular shaft upon pedestal in endless variety; surmounting all is an elaborate cresting in the centre of which stands an elevated figure. In far brighter light above this soars the lantern, in which that wealth of exuberant detail, plateresque and so common in Spain, can be seen all through the day as the sun travels round it.

Typically Spanish is the picturesqueness of the exterior: town life presses closely upon the Cathedral—on the north side where the old houses approach it; at the east end, where mules and oxen jostle beneath the lofty walls of the Constable's Chapel, bearing high its proud heraldry. On the south side, the façades of the Cathedral present a noble appearance. Towering aloft is the south transept, with the beautiful rose window, and beneath it the richly carved Gate of Pardon, approached by a broad flight of steps; on the left is the site of the old palace of the archbishops, and behind it rises the nave, terminating in the western spires with their clanging belfries.

At the west end the confusion of levels in the open space before the elaborate west front indicates that interesting feature of Burgos Cathedral—namely, that it is carved out of a hill which falls from north to south. For this reason, excellent views of it may be obtained from the south; from the north the aspect is not so good, but the sharp rise in altitude from south to north affords the spectator a good opportunity of studying the Cathedral as a whole. The result of this change of levels is the magnificent internal "Golden Staircase," of about 38 steps, which leads from the Apostles' Gate—at street level on the north side—down to the floor of the Cathedral, and the stately steps which externally give so fine an approach to the Gate of Pardon from the road far below. Due to the same cause are the two stories which occur in the cloisters on the south side of the Cathedral. Visitors are shown the upper story only, the level of which approximates to that of the rest of the Cathedral.

Before referring to the foreign features, a word must be said about that rich sculpture and carving which are so characteristic of Spain. The miraculous work in the Constable's Chapel, with its intricacies of detail, can be studied in the fine drawings of Mr. J. B. Waring.* The most celebrated sculpture in the Cathedral is that which occurs in the tombs and other details executed by Gil de Siloe and by his son, Diego. Gil de Siloe's work contains the most amazing ornament, exquisitely and most deeply graven. His work is of the highest beauty, and the tomb of Bishop Alonso de Cartagena has been attributed to him. Another very fine tomb is that of Canon Gonzalo de Lerma.

Foreign, it must be admitted, is the main structure. Bishop Maurice, said to be an Englishman, was responsible for the shell of Burgos Cathedral, dating from the thirteenth century, French in type, and consisting of nave, crossing, an eastern arm, and two transepts. The east end appears to have terminated originally in a chevet, of which little now remains. The shell of Burgos Cathedral, lofty and vaulted, is of extreme beauty, the triforium, with its wide arched opening in each bay, sub-divided, and with pierced openings in the tympanum above, being singularly attractive; there is also a perforated parapet, which is later work.

Nor should the cloisters be forgotten.† With quadripartite vaulting and enriched with much detail, they are treated now like the galleries to a museum, but they are worth a visit, both for themselves alone and for the fine view of the lantern which is to be obtained from the south walk.

German are the two fifteenth-century trellised western spires, and the lofty and elaborate Constable's Chapel, which stands at the east end of the Cathedral, all this work being by John of Cologne. The lantern, dating from the sixteenth century, replaces an earlier structure. The Cathedral, then, has four towers, if we include the lofty and tower-like Constable's Chapel.

Behind the retablo or reredos, which occupies the east end of the Capilla Mayor, is the screen of sculpture which runs round the ambulatory. Most of this sculpture, deeply cut, and depicting scenes from the Crucifixion, is the work of the foreigner, Vigarní, who executed also the elaborate carving on the choir stalls.

As the visitor departs through the south transept, he will see on his left the magnificently carved doorway which leads into the cloisters. Above the Gate of Pardon is the rose window, containing the only old glass which the explosion in the Castle suffered to remain. In 1813, while the French occupied the Castle, which stands on the hill to the north of the Cathedral, an explosion occurred, destroying a number of French soldiers and, in addition, nearly all the stained glass in the Cathedral.

The visitor is free to enter and to depart at will; nor is he, as he leaves its portals, pestered for alms, as is so often the case outside the churches of Spain. The impression which the Cathedral conveys is of a refuge, of which the history is long and varied, and which is ever open to those who wish to make their devotions at its many altars.

* J. B. Waring:—"Architectural, Sculptural and Picturesque Studies in Burgos and its Neighbourhood." London. Fol. 1852.

† "Indeed, I hardly know any cloister in which an architect might be better contented to be confined for a time. . . ." G. E. Street, "Some Account of Gothic Architecture in Spain," Vol. I

TOWN PLANNING.

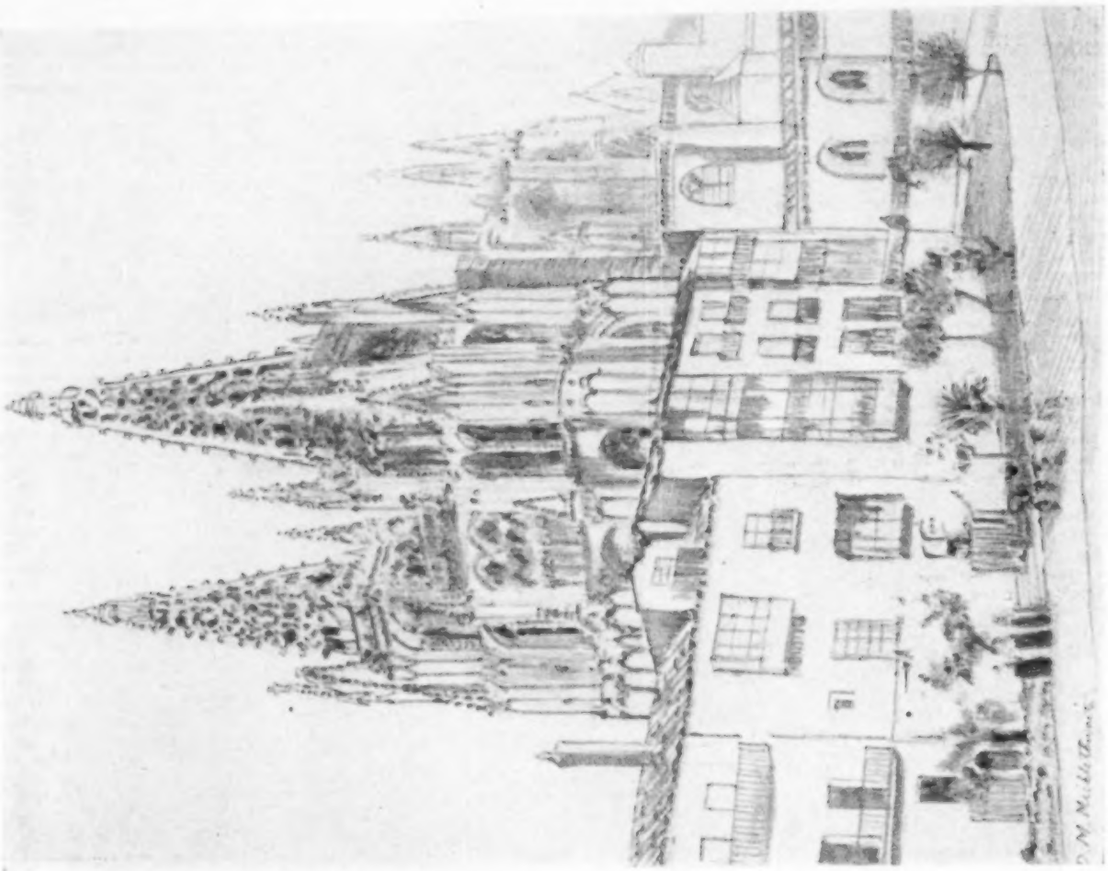
The following town planning progress in England and Wales for the month ended November 30 is recorded by the Town Planning Department of the Ministry of Health:—

Town Planning Schemes submitted (Stage C).—Middlesex: Finchley U.D.C. (No. 1); London: London C.C. No. 3 (St. Pancras M.B.).

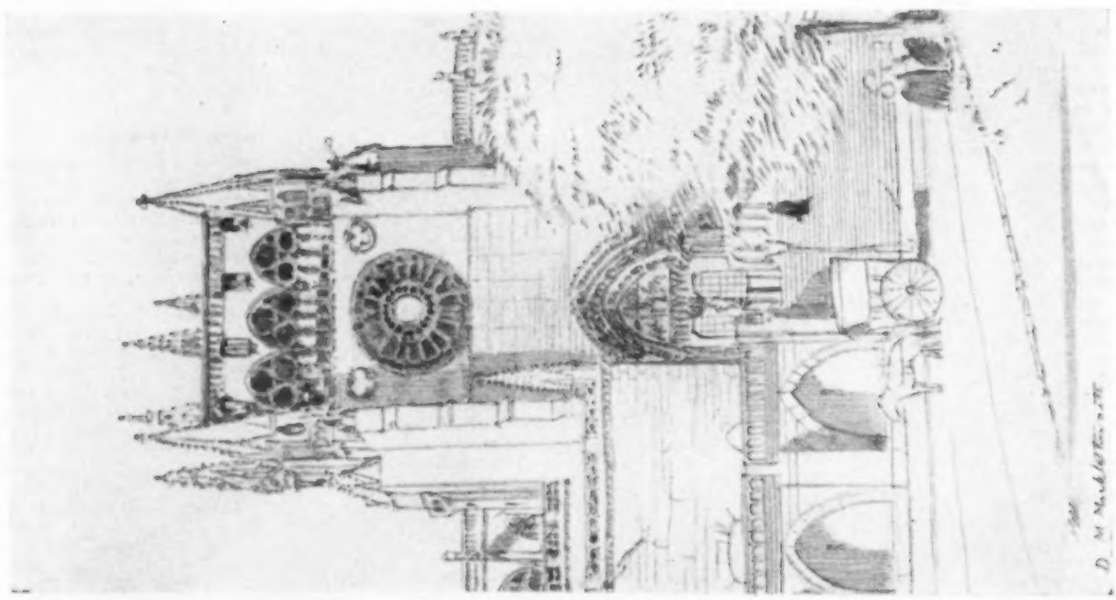
Preliminary Statement approved (Stage B.B.).—Essex: Orsett R.D.C. (Sec. 1).

Preliminary Statements submitted (Stage B).—Durham: Sunderland T.C. (No. 2).

Resolutions received (Stage A).—Devonshire: Honiton R.D.C. (Salcombe Regis and Sidbury); Glamorganshire: Barry U.D.C. (No. 2); Lancashire: Chorley T.C. (Healey Nab.), Coseley U.D.C.; Nottinghamshire: Nottingham T.C. (Extension of District No. 4); Southampton: Portsmouth T.C. (No. 5), Portsmouth T.C. (No. 6), Fareham U.D.C. (Portsmouth T.C.), Droxford R.D.C. (Portsmouth T.C.), Catherington R.D.C. (Portsmouth T.C.); Staffordshire: Stoke-on-Trent T.C. (Western No. 2); Surrey: Merton and Morden U.D.C. (Supplementary Scheme); Yorkshire (W.R.). Ossett T.C.

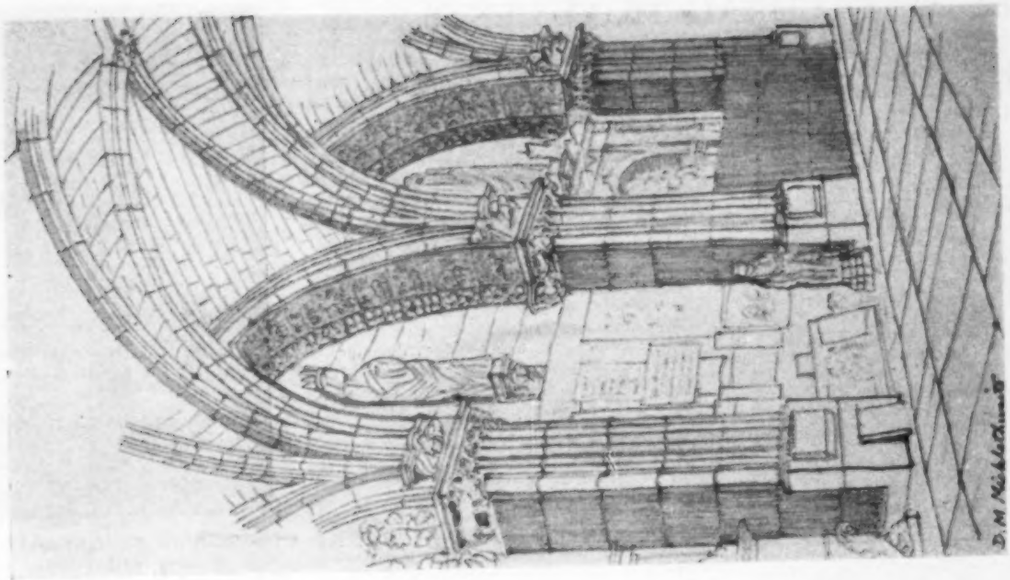


West Front.

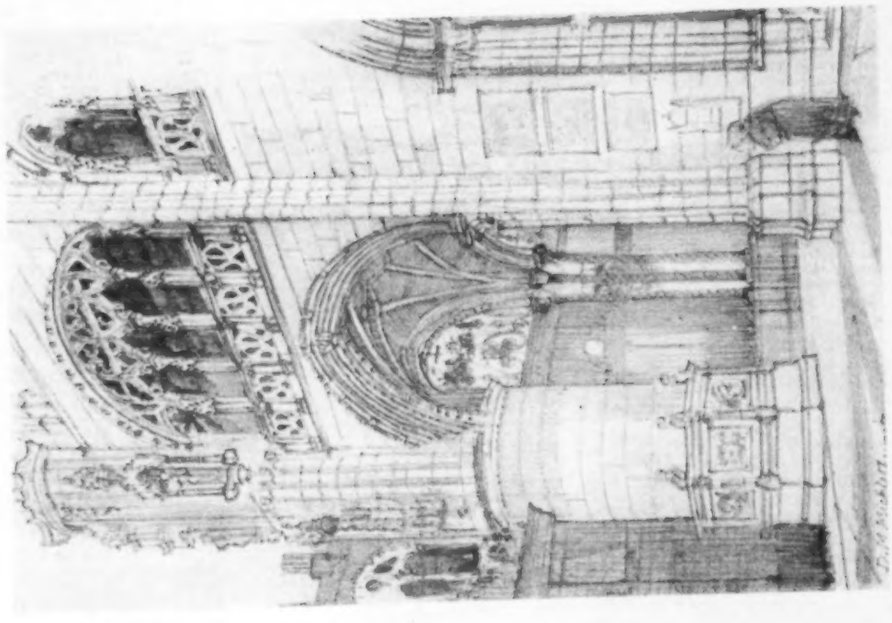


Gate of Pardon.

Burgos Cathedral.
From Sketches by Mr. D. M. Mickletwaite.



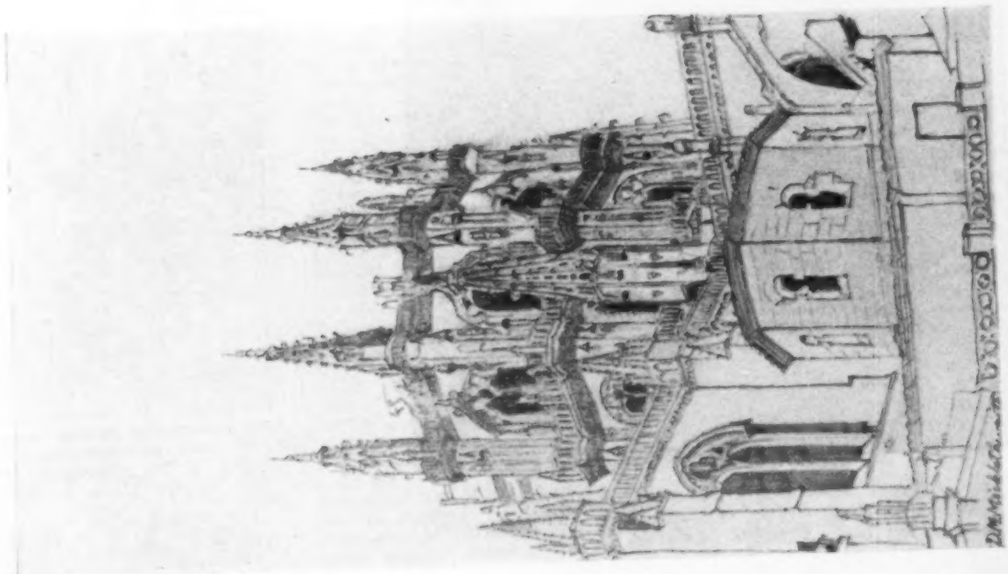
Interior of Cloisters



Interior, Looking North-East across South Transept.

Burgos Cathedral.

From Sketches by Mr. D. M. Micklethwaite.



The Lantern.

From Sketches by Mr. D. M. Micklethwaite.

GREEK SEPULCHRAL MONUMENTS.*—I.

By ARNOLD WHITTICK.

The sepulchral monuments of ancient Greece are the finest of the ancient world or perhaps of any time; and their many forms and varieties, if thoughtfully studied, are likely to be rich in suggestion for the modern memorial designer and sculptor. They thus merit a more detailed consideration than is generally accorded to them in architectural or sculptural histories; while they are more likely to reward æsthetically such consideration than the monuments of most other periods and countries.*

The earliest sepulchral stones of Greece date from a time centuries before the historic period. At Mycenæ (about 1100 B.C.) in addition to the "beehive tombs" there were rock-cut fosses over some of which "there was erected, either at the time of burial or later, an upright slab to mark the spot."† These were of the calcareous stone of the district, and the three in the best state of preservation show archaic representations of what appear to be scenes of battle or the chase. On each stone there is represented by incised lines a man in a chariot drawn by a galloping horse pursuing a man, who, doubtless, suffices for the enemy. In one there is a foreground episode of a lion pursuing a dog. The slabs are additionally ornamented with spiral pattern borders. They were, perhaps, attempts at depicting the activities and the prowess of those they commemorate; hunting and fighting being probably the chief and most venerated of occupations.

From Mycenæ to historic Greece occurs a break more complete than that known as the "Dark Ages" before the Renaissance. It is the ambition of many archæologists to find sufficient material to establish continuity, and thus significantly extend the domains of history. Meanwhile a few links are seized here and there, but insufficient to make a chain. We surmise that the Mycenæans probably fled overseas at the Doric invasion, and some perhaps mingled with the new settlers, but then comes darkness. It is not until the archaic sculptural productions of the sixth century, the exact sources of which are yet unsure, that we can discover any evidence of culture and artistic endeavour, and of that growth that was to be, in its maturity, so fruitful of superlative æsthetic achievement during the fifth and fourth centuries B.C.

Before proceeding to examine the monuments immediately prior to and of the classical period it will assist the comprehension of the subject to consider briefly the general customs regarding burial, the erection of sepulchral monuments, and the general arrangements of cemeteries. In the ancient Assyrian city of Assur, monuments, many of which are stelæ commemorating kings and officials of state, were set up on either side of the roadway. This custom,‡ of which the Assyrian is, as far as I am aware, the most ancient example, was adopted in Greece; though whether the Greeks were aware of the Assyrian custom it would be difficult to discover. In Greece, however, such monuments were sepulchral, whereas those of Assyria were merely commemorative in purpose.

FIG. 2.—*Stele of athlete, probably of the late sixth or early fifth century* B.C. *Found at Athens and now in the National Museum.*

It was the general custom in Greece to bury the dead without the walls of the cities, and though exceptions to this may have existed at certain periods during the earlier history of Greece, I am not aware that any exceptions have been noted between the sixth and third centuries. In Rome during the early days of the Empire it became a stern law which was, however, ignored later owing to depopulation and desolation of areas within the city.

Cremation and body burial seem to have existed together in Greece, the prevalence of one or the other custom varying, as Professor Gardner observes,§ with different cemeteries, neither greatly predominating until about the third century B.C., when the former became the more customary. The body was either laid in the earth, or in a hole in the rock, or a small chamber of stone slabs was constructed in the earth to receive it. Sarcophagi were used only in later times in the cases of rich and important individuals. Pausanias speaks of early graves that appeared as mounds of various sizes surrounded by a stone basement.* With cremation, after the funeral pile had burnt down, the human ashes were usually placed in an urn and buried or, more rarely, preserved in the house. Whether body burial or cremation was adopted the space over the grave for the monument was not restricted to the long rectangular shape of modern times, a consideration which, giving scope for variety of design, avoided much of the monotony of modern graveyards. Pausanias describes the method of erecting grave monuments among the Sicyonians, a method which appears to have been roughly similar to that employed for many monuments during the historical period throughout Greece. He says that they built a stone basement on the grave, set pillars on the basement and surmounted them with a superstructure like the gables of a temple.† The only inscription is the deceased's name and the word "farewell." It is not difficult to see in this crude, and probably not very accurate, description a parallel to the method used for the famous stelæ of Attica. The stele above the base, however, is usually, in the average sized examples, in one piece of marble, and the marble is cut away to form the recess between the pilasters in the same process as carving the figures that usually occupy it.

It must be remembered in forming a notion of the appearance of the stelæ in their original places in the cemetery that

FIG. 1.—*Three stelæ in the cemetery of the Ceramicus at Athens—the stele of Hegeso, of Coroibos, and an example of bas-relief vase stele.*

* Professor Percy Gardner, in his valuable "Sculptured Tombs of Hellas" (London, 1897, but now out of print), has naturally selected a large proportion of the finest examples of Greek Stelæ in his account of them. It is obvious that a summary, such as this can only pretend to be, will cover, though not in the same detail, much of the same ground as Professor Gardner's book. However individual one may be in interpreting and commenting upon the Greek stelæ it is impossible to read Professor Gardner's book without profiting greatly in an understanding of the subject, and I therefore acknowledge my debt to Professor Gardner. I allude, however, to a few interesting examples not mentioned by Professor Gardner, and present information which I think valuable to an idea of the stelæ, such as sizes, and deal with certain developments in design that are not to be found in Professor Gardner's book. A fairly full catalogue of Greek stelæ, all illustrated, is afforded by Alexander Conze's great work, "Die Attischen Grabreliefs" (Berlin 1890-1921), though there are some works that do not find a place even there, as, for example, the stelæ in Lord Newton's collection which I mention.

† Professor Percy Gardner, "Sculptured Tombs of Hellas," p. 53.

‡ Judging from certain similarities, mentioned later, of the early monuments of Greece to those of Assyria I think it probable the Greeks were aware of this custom.

§ *Op. cit.* p. 9.

* Pausanias II. 29, 9, VI. 21, 3, VIII. 4, 9, VIII. 11, 4., VIII. 16, 3.

† Pausanias II. 7, 3.

they must be visualised as standing on the stone bases (see Fig. 1), which are not usually shown in museums or in illustrations. And the sizes given by Conze,‡ which I have roughly translated into English measure,§ are taken from above the base, so in estimating the height above the ground this must be allowed for. It may be that in some cases two bases were employed, a smaller one surmounting the larger that rested on the grave.

For examples of gravestones our attention will be mainly directed to the mainland of Greece. Asia Minor, though affording magnificent examples of larger manuments (such as, in the archaic period, the rock-cut tombs of Lycia and the Harpy Monument at Xanthos, and, during the classical period, the Nereid Monument at Xanthos and the Mausoleum at Halicarnassus), has little to show among smaller monuments comparable with the Greek stelæ of the mainland. They do not merit, therefore, any special reference until we come to the period of the decline of Greek sculpture, when a class of stelæ in Asia Minor deserves brief attention by reason of strongly marked characteristics that appear to be in the direct line of descent from the figure stelæ of the archaic period.

The earliest remains of graves in direct continuity with historical Greece are of about the eighth and seventh centuries B.C., and were discovered near the Dipylon gate at Athens. No monuments were found near these graves, but large amphoræ appear to have stood on them, probably to receive offerings from relatives and descendants. Our main knowledge of gravestones of the sixth century in the vicinity of Athens is largely derived from representations on vases. Here the graves are mostly denoted by mounds, doubtless similar to those mentioned by Pausanias, on which a vessel sometimes appears, apparently so placed to receive offerings. Sometimes, in these representations, a stele is placed by the mound, and sometimes there is no mound, but near the stele appears a horizontal stone or a table, probably intended as a seat for the dead person or as a place for depositing offerings. In one vase painting noted by Professor Gardner, we see clearly, according to that writer, the triple combination of mound, stele, and table.* The stelæ of the late sixth century were usually tall tapering slabs with a low relief or painted portrait of the deceased. Other forms were probably employed, for Pausanias refers to pillars set up over the graves, in one instance a shield appearing on the pillar, and in another an urn surmounting the pillar.†

The stages of development of the simpler stelæ, and of the architectural framework of the figure reliefs can be surmised roughly from existing remains. The earliest appears to have been a plain upright slab with a simple inscription, which Pausanias tells us purported the name and demos or township of the deceased,‡ though a number remain without any inscription. Two discs or rosettes are carved on the upper part of the face on some of these early examples, and this characteristic continues until the fourth century. A horizontal moulding like a narrow, simple cornice surmounting the slab seems to be the first stage of architectural development.§ This was the beginning of the two main subsequent developments. On the one hand, the moulding was surmounted with a pediment sometimes with acroteria,* and, on the other hand, with the anthemion crest. In the former, after the pediment was established as a feature, pilasters were added on either side on the face of the stele, and a convenient recess for figures was formed, the whole having the aspect of the façade of a temple, which was no doubt largely responsible for its development. This design became the principal architectural setting of the family groups and later portraits.

(To be continued.)

‡ *Op. cit.*
§ Considering that most of the stelæ are much worn or partially broken at their edges. I have thought it unnecessary to give more than an approximate measurement within two or three inches.
* *Ibid.* p. 109.
† Pausanias, IX. 30. 7. IX. 25. 2. IV. 32. 3.
‡ Pausanias, I. 29. 4.
§ See Conze, plates 294. 295 and 298.
* See Conze, plates 299 to 304.

MEMORIAL TO QUEEN ALEXANDRA, COPENHAGEN

THIS memorial (which is illustrated on pages 104-106), of which Their Majesties King George V and King Christian X are the two patrons, has been subscribed for publicly in Denmark and England, with Sir Thomas Hohler, the British Minister in Denmark, as chairman of the committee. It takes the form of the decoration of the north aisle of the English church at Copenhagen by Mr. Geoffrey Webb, of East Grinstead, Sussex, and includes a tablet set between two windows filled with stained glass. The tablet consists of a single block of white alabaster, some four feet high, in the centre of which is a coloured circle forming a background to a portrait of Queen Alexandra carved in low relief by Sir Bertram Mackennal, K.C.V.O., R.A., the whole being framed in gilded and painted wood carved by H. H. Martyn & Co., of Cheltenham. The glass in the two windows shows St. Elisabeth of Hungary and St. Hilda of Whitby flanked by heraldry, which includes the arms of Queen Alexandra, King George, and King Christian. The memorial was unveiled by King Christian on December 14. In using alabaster and gilded wood, Mr. Geoffrey Webb has aimed at making the memorial tablet a link between his two stained-glass windows in a connected chain of colour, so that it may take its place as an integral part of the colour-decoration of the north aisle, instead of being a disjointed unit without reference to the rest of the architecture.

The portrait medallion, founded on studies which Sir Bertram made from life during Queen Alexandra's lifetime, is set in a wreath of dolphins carved from a single alabaster slab containing the memorial inscription, which runs as follows :—

TO THE GLORY OF GOD AND IN PERPETUAL MEMORY OF ALEXANDRA PRINCESS OF DENMARK AND QUEEN OF ENGLAND THE FOUNDER OF THIS CHURCH EQUALLY RENOWNED FOR HER CHARITY HER BEAUTY AND HER VIRTUE AND FOR HER DEVOTED LOVE TO TWO COUNTRIES THAT OF HER BIRTH AND THAT OF HER ADOPTION.

The slab is set in a frame of carved woodwork, richly coloured and gilded. In the cresting, winged half-figures support a shield surmounted by a crown bearing the initial "A," and below this is a carved trail of roses. The tablet occupies the whole space between the two three-light windows and combines the colour of their glass into one complete whole. Each window contains a figure of a saint flanked by heraldry and other devices. In the right, or easternmost, window the centre light is occupied by the figure of St. Hilda, Abbess of Whitby. She was a princess of the Royal blood, being the grand-niece of Edwin, first Christian King of Northumbria. She is shown here holding a model of a church in her right hand, with her crozier in her left. There is a reference in this representation to the fact that Queen Alexandra founded the Anglican Church of St. Alban in which this memorial is placed. Above St. Hilda is the shield of the Diocese of London within a wreath surmounted by a mitre and crozier, the Church of St. Alban being within the jurisdiction of that diocese which extends over northern and central Europe. The whole light is framed with a canopy and border; the former consisting of two sea-children blowing on shells and riding on dolphins followed by seagulls; the motif of the sea and air occurs continually throughout the design, and is symbolic of the two elements which unite England and Denmark. In the borders of this light are found various emblems, the shield of St. Hilda bearing three coiled serpents, seahorses, and a crozier borne by two winged sea-children. The quarries, or diamond-shaped panes, of the background are diapered alternately with the Lion of England and the Nine Hearts from the Danish Arms.

This centre light is flanked by two smaller ones, of which the left one bears the arms of His Majesty King George the Fifth, with garter, crown, and supporters, and the right that of His Majesty King Christian the Tenth of Denmark, similarly crowned and supported, within the two collars of the Dannebrog and Elephant. Beneath the British Royal Arms on the left are the shield and supporters of the City of London, and below the Royal Arms of Denmark the shield and supporters of the city of Copenhagen, representing Queen Alexandra's native city and that of her adoption. The canopies and borders which frame these two lights contain further references to the sea. Sea-children on dolphins are holding sails, and surmounting each light is a mediæval ship; the one on the left flying the British flag and sailing eastwards, and the one on the right, a Danish ship, sailing westwards. The borders of the left light contain heads of lions and unicorns alternating with sea-lions and wings, and the right light contains the heads of the savage men, supporters of the Danish Arms alternating with dolphins and wings. The heads of the lion and the savage man also occur at the base in a border, which terminates in roses with the exception of the extreme right corner, which is occupied by the designer's signature.

The three-light window on the left, or west, of the memorial represents in the centre light the figure of St. Elisabeth of Hungary in the robes of a Royal Princess. In the folds of the outer robe she is holding roses, which refer to a legend at the time of her married life, when she was taking loaves from her house to feed the poor and on the way met her husband, who remonstrated with her. At his request to know what she concealed in the folds of her robe, she displayed the contents, but the bread had become roses. The connection of roses with hospital work forms an allusion to Queen Alexandra's choice of the rose as a symbol of her enthusiasm for hospitals; and the same association is alluded to in the diamond panes of the background, where the spray of roses alternates with the rod of Aesculapius. The rose encircled with the Garter appears above her head, the badge of the Order of the Garter, of which Queen Alexandra was a member. The scroll above the figure bears the words: "Sancta Elisabeth Vidua." In the canopy surmounting the light is a shield bearing the initial "A," with a crown similar to that in the cresting of the alabaster memorial. Winged children support a swag of foliage and are seated on ornament ending in roses and the heads of the lion and savage man. The border contains the rod of Aesculapius, two sprays of roses and a vessel holding three loaves surmounted by the royal crown. Of the two lights flanking this centre one, that on the left contains the arms of Queen Alexandra as Queen of England, consisting of the Royal Arms of England impaling those of Denmark, with the lion for the dexter supporter and the savage man for the sinister. Below is the shield of St. Alban, the patron saint of the church, and the canopy above shows two winged children playing with seagulls; the elements of air and sea are also symbolised in the borders by wings and fish. The light on the right contains the arms of Queen Alexandra when Princess of Wales; in this the dexter half of the shield is surcharged with the escutcheon of Saxony, and both it and the lion supporter are differenced with a label of three points. The shield of the Dannebrog, which is the Danish flag, appears in the base surrounded with a wreath of blue and green dolphins. Along the base the borders are completed with a trail of roses issuing from a little shield bearing the initial "A." This glass was designed and carried out by Mr. Geoffrey Webb in his studio at East Grinstead, Sussex.

HOUSING AND THE SUBSIDY

A YEAR ago (December 8, 1928) the then Minister of Health (Mr. Chamberlain) issued an order altering the contributions payable by way of subsidy under the Housing Acts of 1923 and 1924. The general effect of the order was to put an end to the subsidies payable under the Act of 1923 as from the end of September, 1929, in England and Wales and to reduce them in the case of Scotland by £2 per house as from the same date. At the same time it was proposed to effect a substantial reduction in the subsidies payable under the 1924 Act as from the same date, presumably as a step towards their entire abolition in the near future.

On the whole, the order was accepted by the building trade as a necessary and inevitable step towards abolition, and no great objection was made from that quarter. The opinion most generally expressed in the trade, by employers, was that the sooner the building industry was entirely relieved from legislative interference the sooner it would reach a reasonably stable post-War level and house property have a chance to become once more an attractive and relatively safe investment for the savings of the people.

The change of government consequent upon the General Election in May last brought a different political outlook to bear upon the housing problem. There was, moreover, considerable influence exercised from various directions in favour of stimulating the erection of houses to let; the workers in the building industry were suffering from unemployment; the advocates of the municipalisation of housing services were desirous of promoting the construction of houses by direct labour; the politicians were being pressed to implement certain election promises; the Government was by its very nature sympathetic.

The result was that the revision order issued by the Minister of Health in 1928 was varied by the passing of the Housing (Revision of Contributions) Act, 1929, in such a way that for houses built subject to the special conditions of the 1924 Act and completed on or after October 1, 1929, the subsidy to the local authorities will be at the rates in force prior to the revision order of 1928, namely, £7 10s. per house, or if situated in an agricultural parish £11, payable annually for a period of 40 years subject to special conditions as to letting and sale, instead of at the reduced rates provided in the last-named order.

As regards houses not subject to the special conditions of the Act of 1924, no provision was made, however, and so the subsidy payable under the Act of 1923, by which private enterprise had been so greatly stimulated, disappeared finally at the end of September last, so far as England and Wales is concerned. This partial and one-sided reversal of policy is not viewed with favour in many quarters. It is felt that if there was to be such a reversal of policy it should have applied similarly to the subsidy payable under the Act of 1923, and that unfair treatment has been meted out to a section of the building community, which has done more than any other, both prior to and since the War, to supply the housing requirements of the working classes of this country.

There is still a consensus of opinion among building trade employers that the sooner all subsidies are abolished the better, but until they are abolished all round there is a strong feeling that private enterprise should enjoy relatively equal treatment with local authority enterprise as regards the construction of houses and the State subsidy allowance in regard thereto.

In certain quarters it is cannily suggested, however, that builders who may be considering the erection of houses as a speculative venture should weigh carefully the relative advantages of doing so, despite the lack of the subsidy formerly available under the 1923 Act as compared with the conditions which have to be complied with if they take the subsidy under the 1924 Act.

If they proceed without the subsidy, builders in some areas are free from all regulations other than those of the building bylaws; they have the advantage of a free market in respect of the rents they charge and the prices at which they sell, provided that their product is able to compete with the subsidised product of local authority enterprise; the subsidy requirement of 12 houses to the acre is not operative, and houses can be arranged in suitable blocks; they have a free hand in planning their sites upon the most economic lines, and in regard to the design and type of house they place upon them. In areas where a town planning scheme has been authorised, however, there may exist restrictions as to the general layout and as to the number of houses thereon, but these may be less onerous than the conditions imposed under the 1924 Act. If they proceed under the Act of 1924 the subsidy is doled out year by year; the property cannot be sold without a liability to a reduction or loss of subsidy, and the maximum rent charge has to be agreed with the local authority.

Whether the effect of the restoration of the subsidy arrangements to which reference has been made will stimulate housing enterprise by local authorities or others to any considerable extent remains to be seen. Doubtless it is intended to do so, but it may well be that, seeing that so much national money is wanted for other purposes, and because of the extent to which demand for houses at present price levels has been satisfied, no marked expansion in the rate of house building will take place.

For the year ending September 30, 1929, the numbers of houses completed were :—

Under 1923 Act, mostly by private enterprise	72,436
Under 1924 Act, mostly by local authorities	55,209
By private enterprise without subsidy	71,083
	198,728

That total compares with total of houses built for year ending September 30, 1928... 185,722

As regards the comparative cost of houses (parlour and non-parlour) in those two years, the following table gives the average prices of houses completed during each of the past five quarterly periods under schemes approved by the Ministry of Health :—

1928.—September ...	£393
1928.—December ...	£389
1929.—March ...	£376
1929.—June ...	£376
1929.—September ...	£374 10s.

When reviewing the housing situation a year ago the view was expressed that there might be some slowing down of housing production during 1929 unless prices fell sufficiently to enable a new source of demand to be tapped, and it was suggested that a lower price level would possibly be available some time in 1929. The above figures bear out that anticipation, especially when it is remembered that there was some pressure to finish as many houses as practicable before the cessation of the subsidy under the 1923 Act on September 30 last.

Notwithstanding all that has been done in the way of providing dwellings for the people of this country, the provision of houses at rentals within the capacity of the less fortunate workers to pay is still a problem. In some quarters it is thought that a stage has been reached when consideration should be directed towards removing some of the handicaps which continue to militate against the production of still cheaper houses; such as the effect of the restriction of the number of houses which may be built upon an acre of ground; the possibility of adopting measures which would enable the housing question to be put upon an economic basis once more, as eventually will have to be done.

Prior to the War the provision of the cheaper class of workmen's houses was carried out almost entirely by private enterprise. Those who catered for this class of building knew the local conditions and were able to induce investors to purchase such property or freely to advance money on mortgage thereon. It is true that the old conditions can hardly be reverted to, for various reasons, but it should be possible so to modify some of the present conditions that this kind of housing activity could be resumed at a price level which would compare with the price levels that obtained formerly, due allowance being made for the changed circumstances of our time.

There has been an average decline in the cost of living during the past year, which will enable the National Joint Council for the Building Industry to sanction a reduction of wages under the sliding scale to the extent of a halfpenny per hour, or approximately 5 per cent.

There seems little ground for expecting any considerable change in the price of materials, although they are at present relatively high. Work in the building trade generally is reported to be keenly competed for, and demand appears to be somewhat patchy.

There is a considerable amount of unemployment in the building trade, particularly in certain districts. The average percentage of unemployment is 1.2 per cent. above what it was at the corresponding period last year, but the figures range from 9.4 per cent. in the south-eastern district to 33.1 per cent. in Wales, and is generally high in the northern half of the country. Some of it is doubtless of a seasonal nature, but even when full allowance is made for that factor it cannot be said that there is more than a moderate demand for building trade labour.

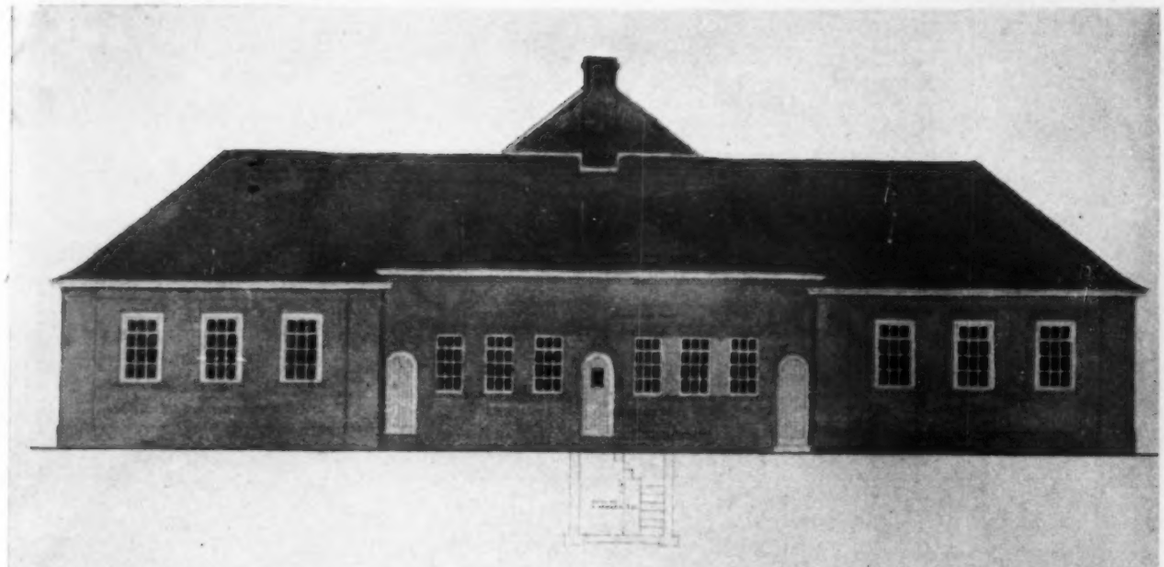
As regards the prospect for 1930, there is some indication that demand may improve, seeing that, according to the statistics available of the plans passed during the last twelve months as compared with the previous twelve months, there has been an increase this year of 5.65 per cent.

Nairn Harbour Scheme.

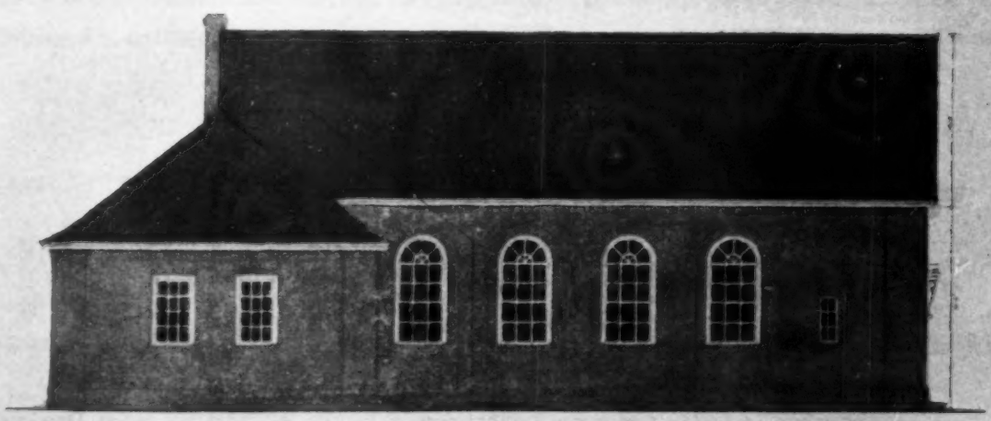
Provost Fletcher, Nairn, has received from Captain Stuart, M.P. for Moray and Nairn, a letter offering, on behalf of a friend, who desires to remain anonymous at this stage of the proceedings, to lend £26,000 free of interest, to help towards the successful completion of the new harbour works at Nairn. The scheme is expected to take about three years to complete, at the end of which time the loan has to be repaid to the person advancing it. Acceptance of the offer would mean a saving of about £2,000 to the ratepayers of Nairn, as, had this offer not been made, a loan for a like amount, bearing interest at the rate of 5½ per cent., would have had to be raised by the Town Council. The scheme is to cost £47,000, and with the loan of £26,000, a free grant of £14,000 from the Government, and £7,000, which the council has already in hand, the sum required is assured.

Proposed Town Hall for Tipton.

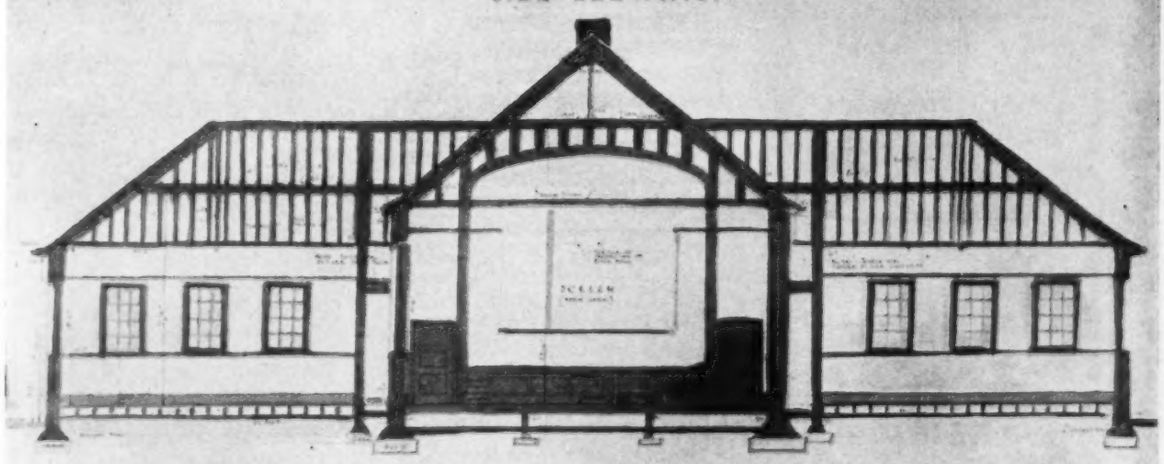
At a meeting of Tipton District Council, the General Purposes Committee reported that they had considered the question of erecting a town hall, and had been informed that the Unemployment Grants Committee were prepared to receive application for financial assistance towards the cost. They recommended that a deputation wait upon the Ministry of Health and the Unemployed Grants Committee to ascertain what financial assistance would be granted the Council. They further recommended that the land belonging to the Council at Horseley Heath, known as "Blue Pig Row," be the site of the proposed town hall. The recommendations were adopted.



BACK ELEVATION



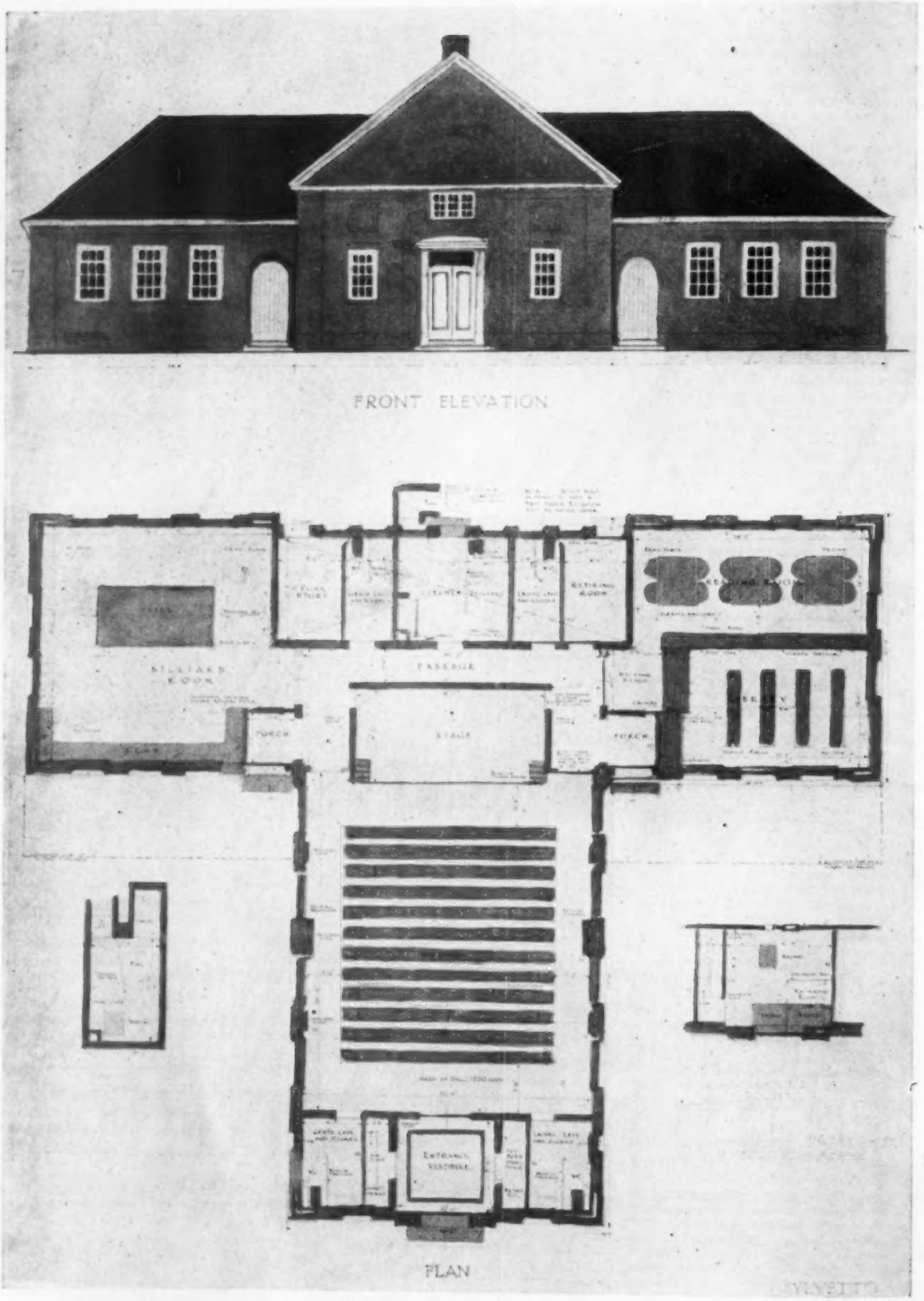
SIDE ELEVATION



SECTION A.B

Design for a Village Hall.

By Mr. G. Bellis.



Design for a Village Hall.

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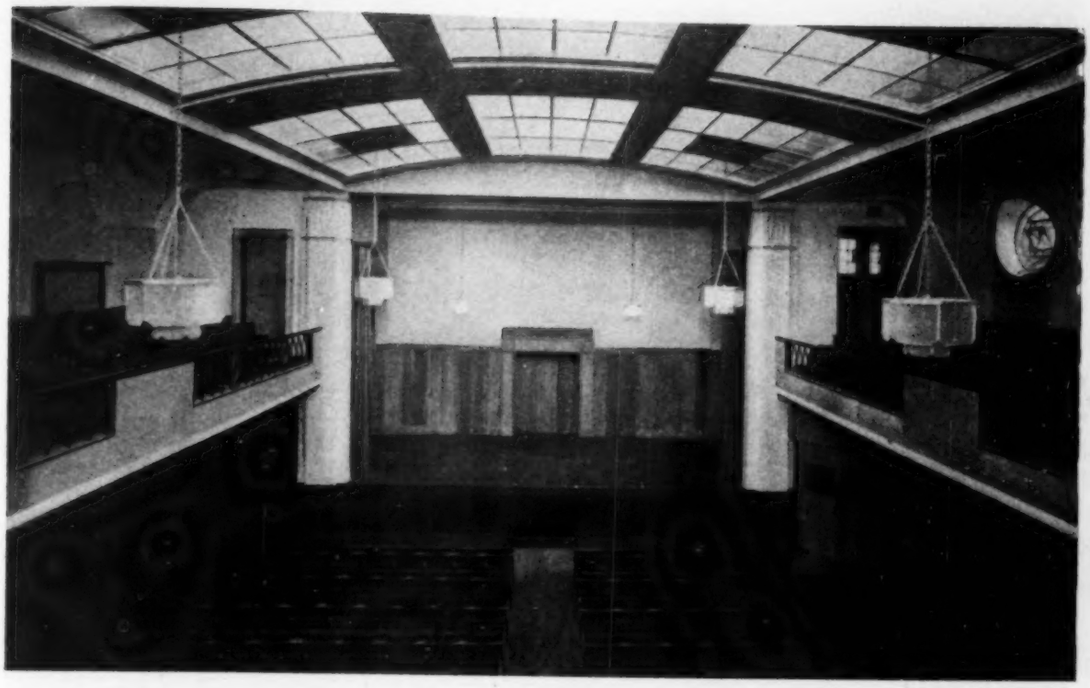
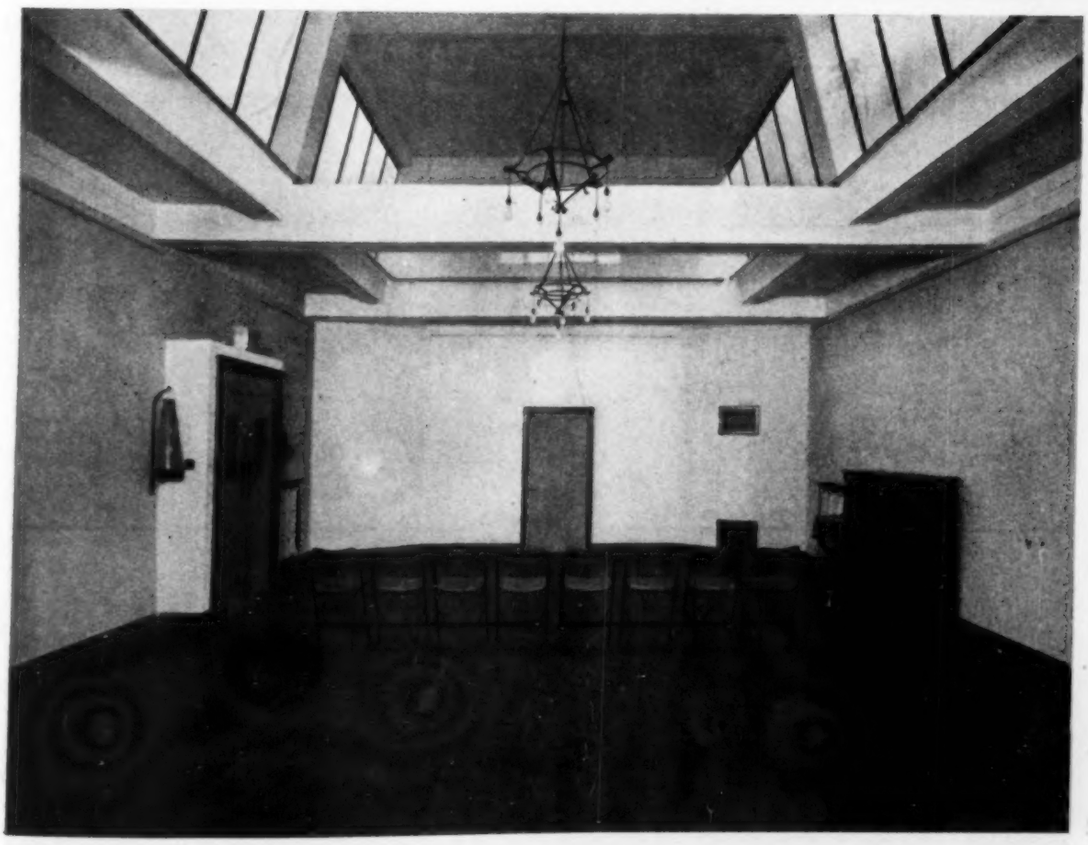


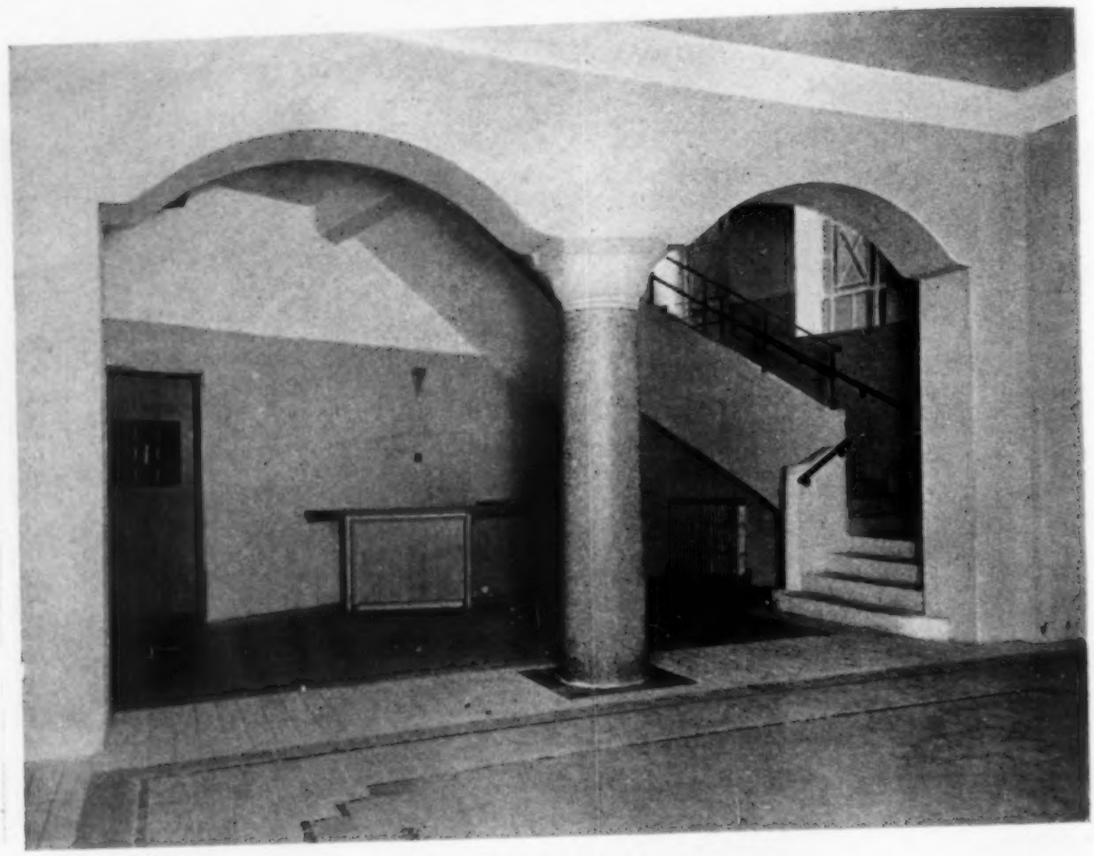
Interior of Large Hall.



Interior of Small Hall.

Conway Hall, Red Lion Square, W.C.

Mr. F. Herbert Mansford, L.R.I.B.A., Architect.

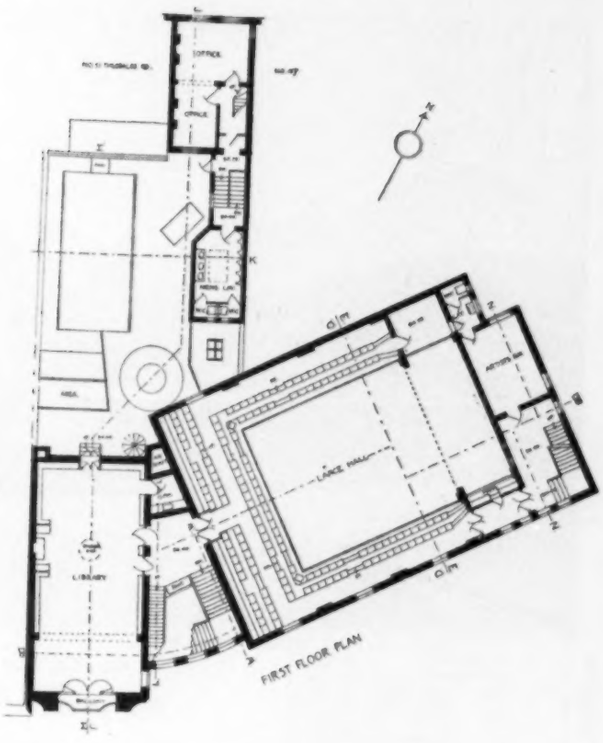


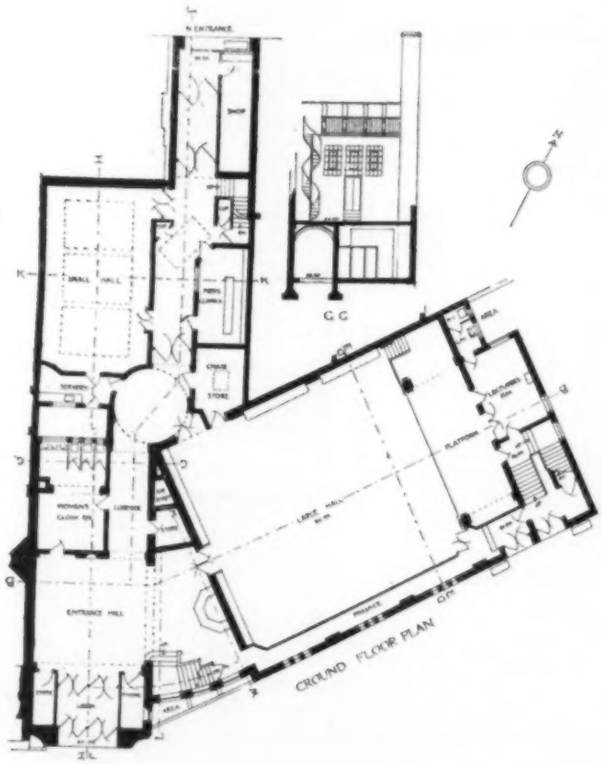
Entrance Hall and Main Staircase.

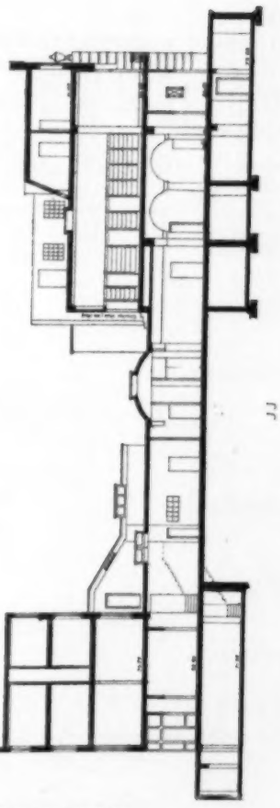
Library.

Conway Hall, Red Lion Square, W.C.

Mr. F. Herbert Mansford, L.R.I.B.A., Architect.

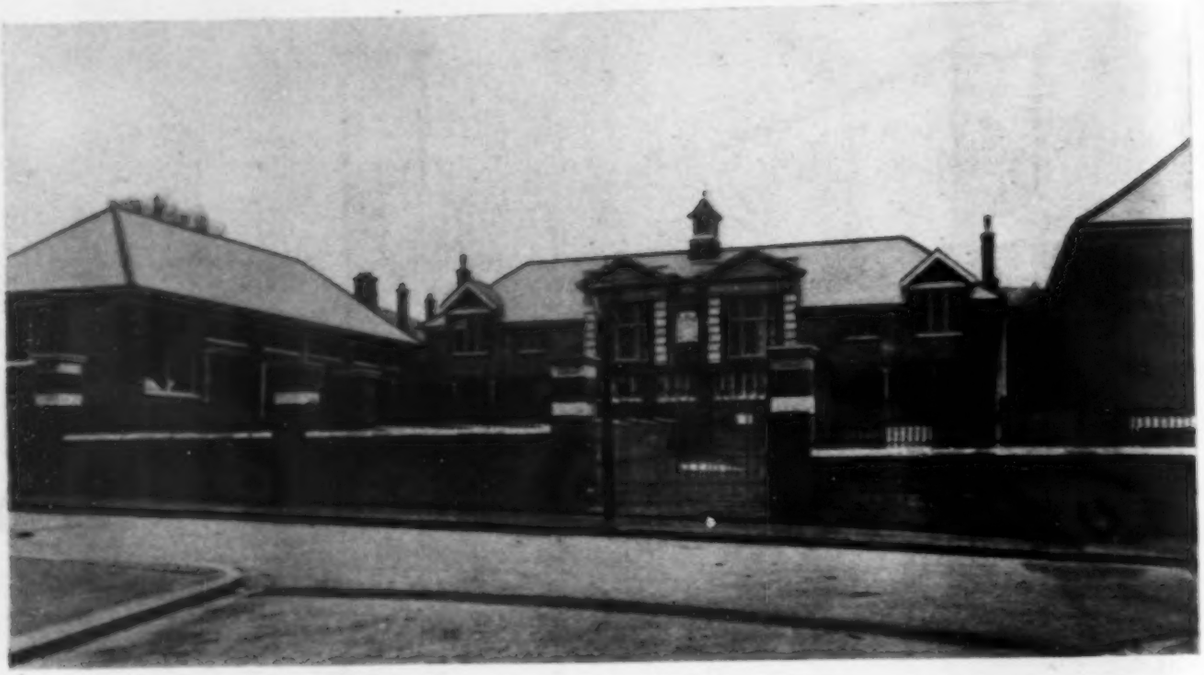




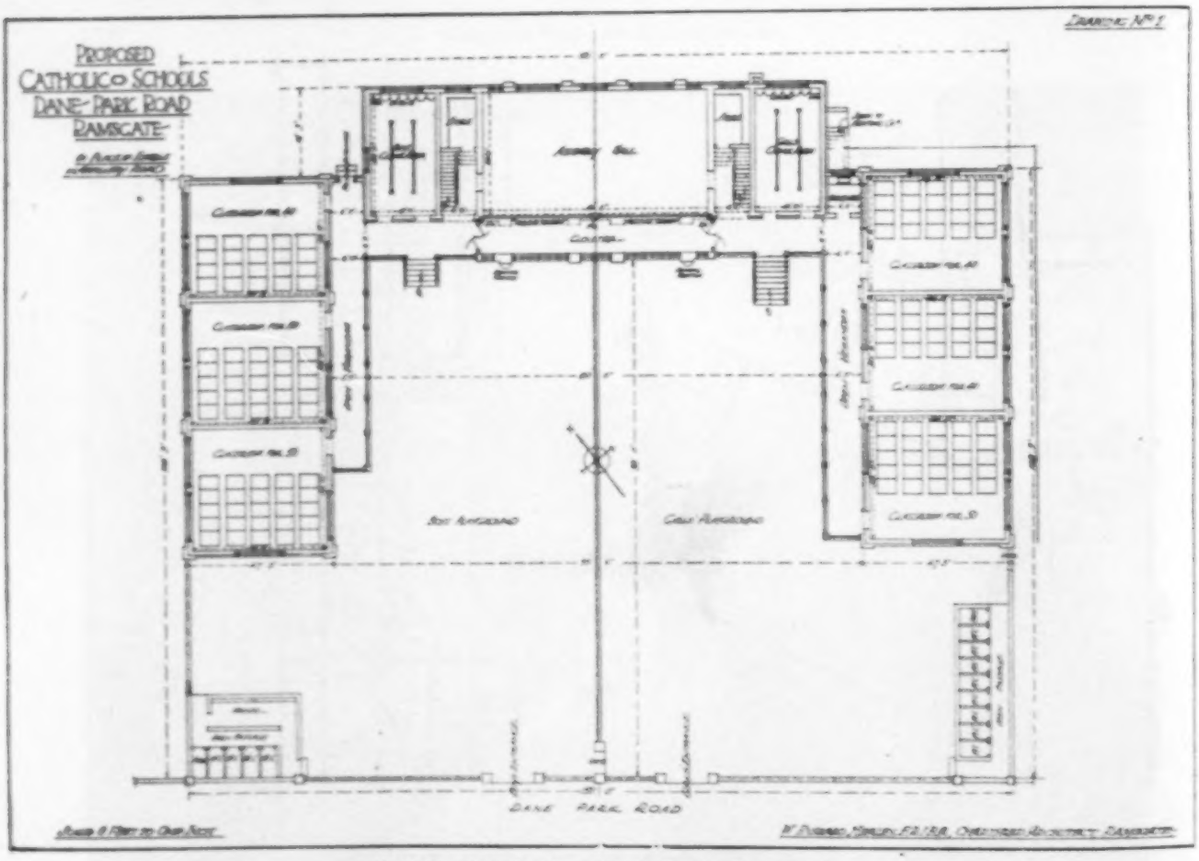


Conway Hall, Red Lion Square, W.C.

Mr. F. Herbert Mansford, L.R.I.B.A., Architect.

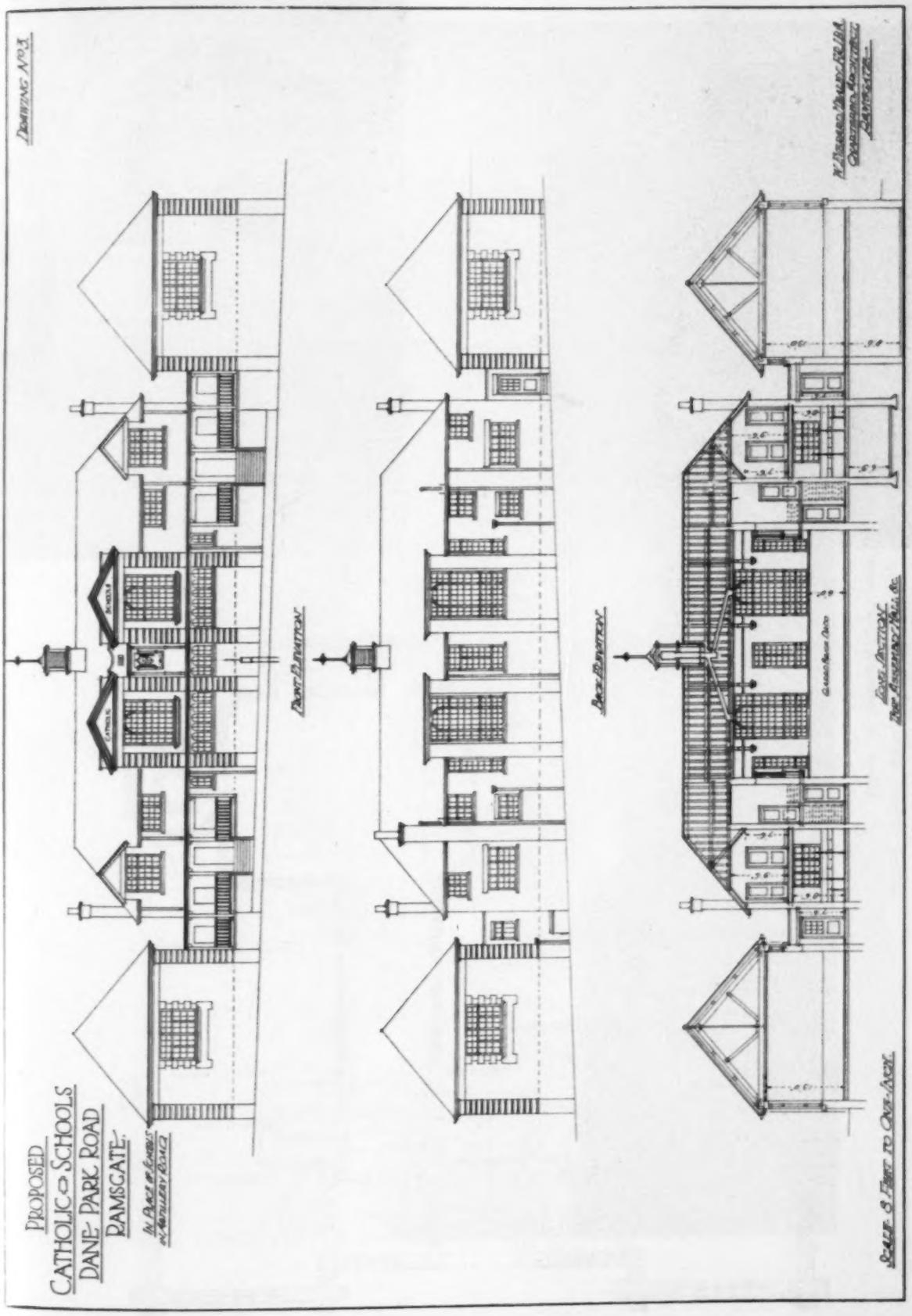


General View of Exterior.



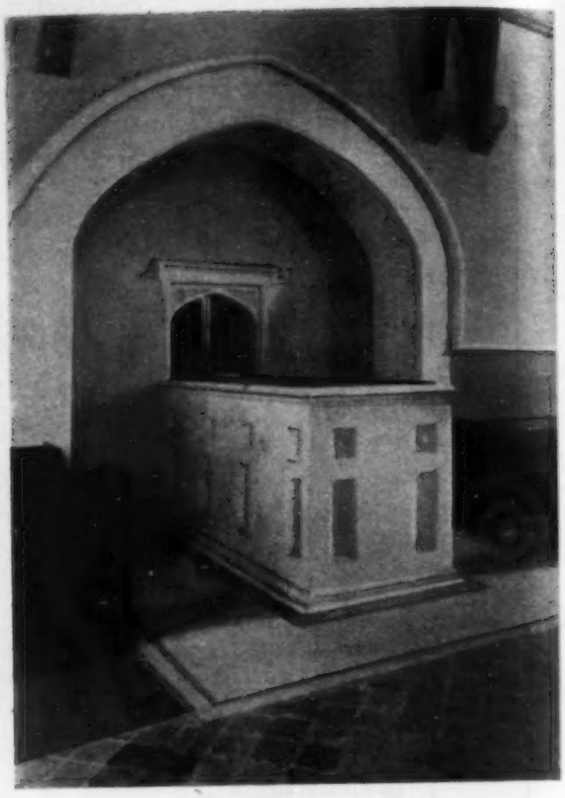
Catholic Schools, Dane Park Road, Ramsgate.

Mr. W. Everard Healey, F.R.I.B.A., Architect.

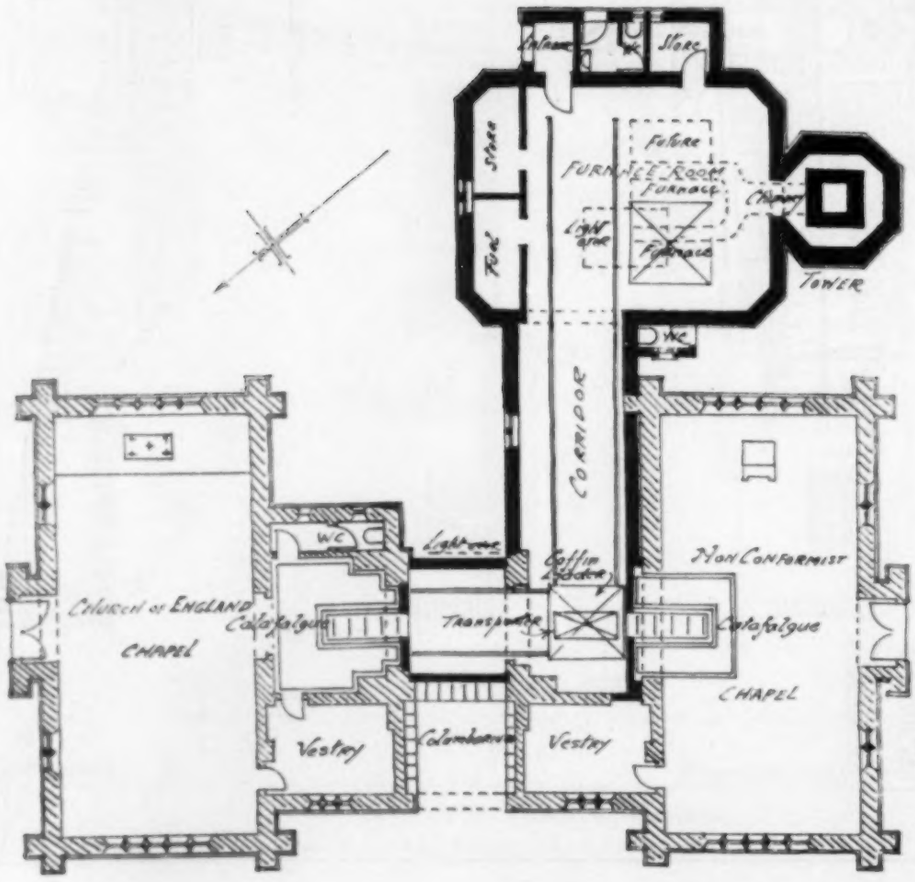


Mr. W. Everard Healey, F.R.I.B.A., Architect.

General View of Exterior.

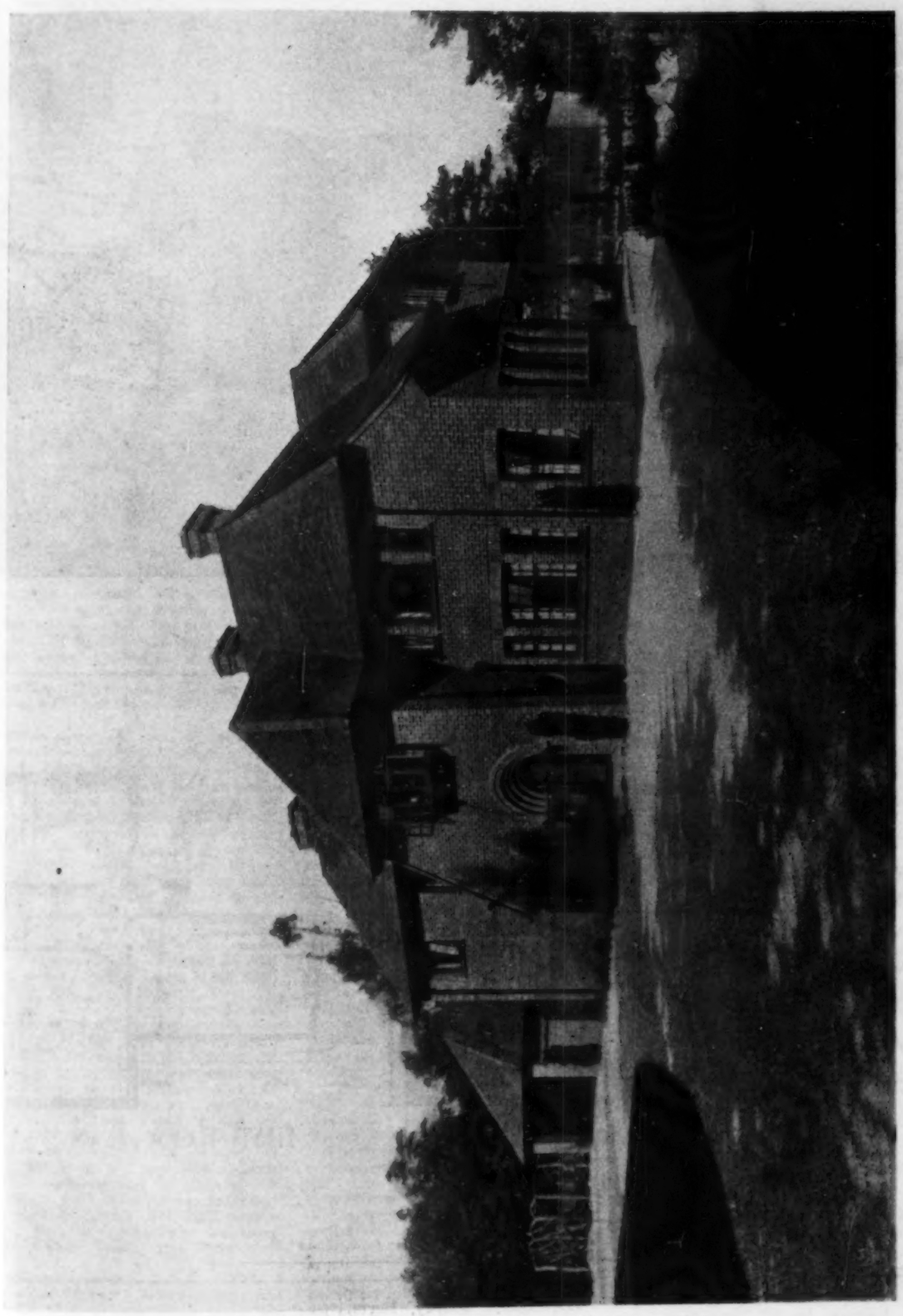


Catafalque in Nonconformists' Chapel.



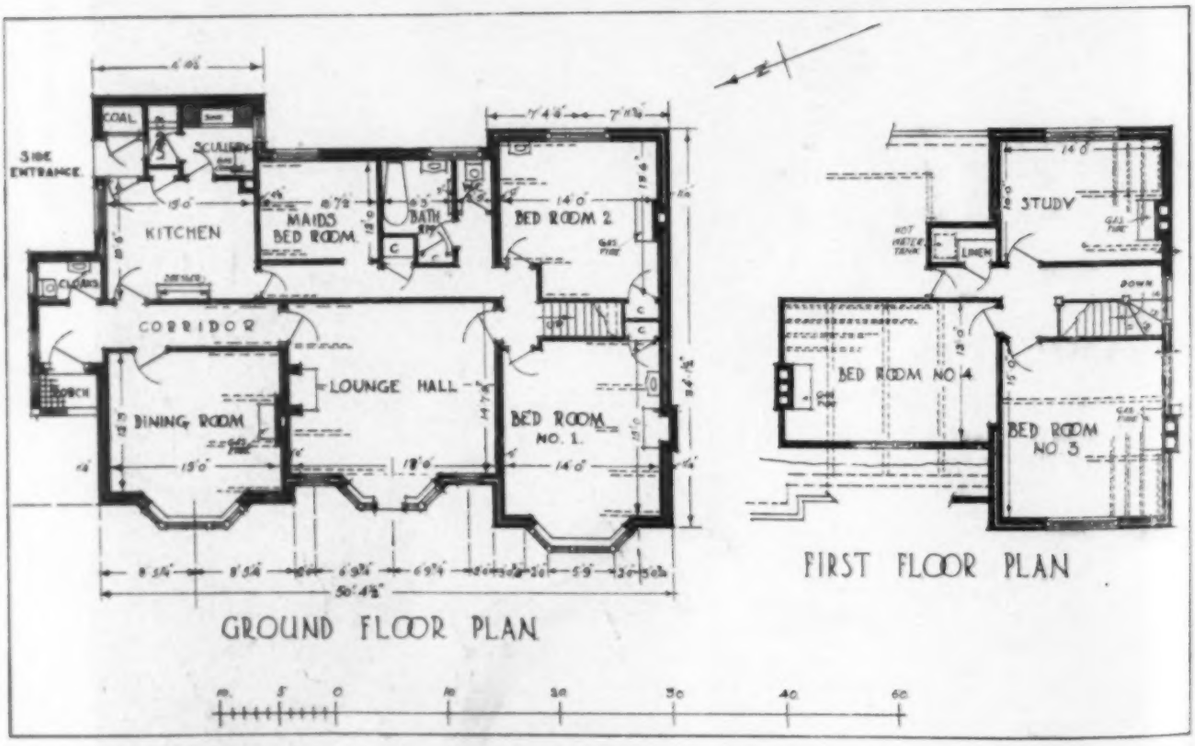
Plan.

Brighton Crematorium. Mr. Albert C. Freeman, Architect.



House at Summersdale, near Chichester.

MESSRS. GORDON GRIFFITHS AND E. BRIAN TYLER, A.R.I.B.A., Architects.



"Hartingen," Hadley, Herts.

Mr. W. Harold Jones, A.R.I.B.A. (Messrs. Weir, Burrows and Weir), Architect.

BUILDING PRACTICE—I.

By W. T. CRESWELL, Barrister-at-Law, Hon. A.R.I.B.A., Associate (late Fellow), Surveyors' Institution, etc.

DEPOSIT OF PLANS.

In most districts, though there are exceptions, there are by-laws made by the local authorities which are obligatory. In any such district every ratepayer is entitled, on application to the local authority, to a gratis copy of its by-laws. In any building or other enterprise controlled by the by-laws it is obligatory on the employer or his agent to deposit plans and such other details as are locally required with the local authority, and he should previously have considered the by-laws so as to make his plans comply, and to deposit them at the right juncture.

Under section 157 of the Public Health Act, 1875, special powers are conferred on urban authorities (and further extended by section 23 of the Public Health Acts Amendment Act, 1890, and section 24 of the Public Health Acts Amendment Act, 1907), whereby urban authorities may make by-laws controlling the construction of new streets, buildings, etc., and the deposit of plans, etc., and giving notices of their intention, by *persons intending* to carry out such enterprises, also the inspection of the works by the local authority, and the power of the local authority (under Statute) to pull down any structures which contravene the by-laws.

Rural authorities only acquire these powers on being invested with them by the Ministry of Health or by adopting section 23 of the Act of 1890.

It is usually required that notices be given to, and plans deposited with, the local authority before works are begun. Further, under the provisions of the Act of 1907, and where it is in force, declare the plans and notices to be of no effect, if the works proposed are not commenced within three years, and may then require fresh plans, etc., to be deposited before the works are actually begun.

In districts where the local authority requires plans to be submitted before work is commenced, it is a *separate* offence to ignore this requirement, even if the work is shown to be in absolute compliance with the by-laws in all its details. On the other hand, no person is required to *wait for the approval* of the local authority beyond the period of *notice* stipulated in the local by-laws —excepting in the case of a *temporary* building—but if anyone elects to proceed to construct any work without the approval of the local authority he risks their taking proceedings against him if they are of the opinion that his enterprise contravenes their by-laws.

In Robinson *v.* Barton Eccles L.B. (1882), L.R. 8 A.C. 798, Lord Esher said: "The Act of Parliament is not concerned with what people do upon paper, but with what they do in point of fact and upon the land."

It is clear, therefore, that the various procedures of giving notice and submitting plans are intended to establish an understanding, between the local authority and those intending to carry out works in the district, that the plans, etc., are in compliance with the by-laws, and that if they are adhered to, the work will have the approval of the local authority and its officials.

A structure may be a "new building" under the Public Health Act, 1875, and at the same time a "temporary building" under the Public Health Acts Amendment Act, 1907.

In Andrews *v.* Wirral R.D.C. (1916), 1 K.B. 863, the defendant local authority had power under their by-laws (made under the Public Health Act, 1875) that if any work should be "begun or done" in contravention of their by-laws, they could forthwith pull down such work after giving notice to the person by whom the work had been "begun or done."

A new building was constructed in contravention of the by-laws; and, after being set upon wheels, was sold to the plaintiff. The local authority gave him notice to show cause why it should not be pulled down as a new building contravening the by-laws; his reply being unsatisfactory, they forthwith pulled it down. The plaintiff sued the local authority for damages. At the trial the local authority sought to prove notice to the constructor of the building by secondary evidence, viz., a duplicate notice only. It was held that the duplicate notice was inadmissible, and that the local authority, not having proved notice, could not thereby justify their action under the Public Health Act, 1875; but that, having complied with the provisions of the Public Health Acts Amendment Act, 1907, they could justify their action under that Act.

It should be noted that in by-laws the deposit of plans of new streets are treated separately from the deposit of new buildings.

The plans deposited with the local authority may, when approved, be retained under section 16 of the Public Health Acts Amendment Act, 1907, when this section is operative; but in Gooding *v.* Ealing L.B. (1884), I.T.L.R. 62, it was held that it is reasonable to make by-laws also enabling the local authority to retain the plans of intended buildings even when they are disapproved.

Approval and Disapproval of Plans.

When plans are in accordance with the by-laws and are disapproved by the local authority, the person depositing them can (*a*) apply to the Court for a mandamus to compel the local authority to approve the plans, or (*b*) for a declaratory judgment to the effect that the by-laws will not be contravened by the plans, or (*c*) he can proceed with the work and enter a defence if action is taken against him by the local authority for contravention.

The Minister of Health has no power in the matter to force the hands of any local authority.

A local authority must, within one calendar month after any notice, plan or description of any work has been delivered or sent in, in pursuance of a by-law, signify *in writing* its approval or disapproval of the intended work. Should the work be commenced after notice of disapproval or before the expiration of the month without such approval and it contravenes the by-laws, the local authority may cause so much of the work as has been executed to be pulled down or removed, and may recover expenses at its discretion either from the person executing the work or from the person causing the works to be executed.

It will have been noticed that it is the person "*intending* to build" who must deposit the plans, etc., with the local authority. It follows that it is the person "intending to build" who can be prosecuted by the local authority or by any person aggrieved or by any other person who first obtains the consent of the Attorney-General for any contravention, and in all cases it is the person who alleges that there has been a contravention who must bring the case to the Court.

It is somewhat difficult to determine who is the person "intending to build." In general it has been established that it is the owner or employer; but it is not unknown for both the architect and the builder to be regarded also (wrongly) as that identity. In Mayor of Sunderland *v.* Brown (1880), 43 L.T. (N.S.) 478, a person who, under a contract, built along the line of a street laid out by the owner with whom he had contracted, was held not to be a "person who lays out a street." In Kershaw *v.* Brooks (1909), 2 K.B. 265, it was held that a plumber who was found to be merely carrying out the orders given him by the owner of a house could not be convicted of contravention of by-laws. In Welsh *v.* West Ham Corp. (1900), 1 K.B. 324, a builder working for an employer was held not liable for a continuing offence in contravention of a by-law.

"THE BUILDER" DEBATE

XXV.—CAN OUR STUDENTS DRAW?

Sir,—The proof of the pudding is in the eating. During the past ten years hundreds of students have gone out from the architectural schools, and every year sees a fresh influx into the profession via the offices of architects in practice. These students are giving satisfaction. They are making many of the working drawings which are used on the job and which in some cases are exhibited at the R.I.B.A. on the annual students' evening and subsequent exhibitions.

Never have working drawings been clearer or better. Never has competition work, so much of which is drawn by ex-students, reached a cleaner and saner presentation. Anyone who doubts the part which ex-students play in this work, and office work generally, should consult the employment registers of the R.I.B.A. and the A.A., or ask the architects themselves. You will find the ex-student everywhere giving—not universal satisfaction, for no such state exists—but satisfaction in the vast majority of cases.

There on broad lines is the answer to the criticism of "Positive." As regards the exhibitions of students' work "staged" by the architectural schools, nine-tenths of the visitors to these are not people who "view the proceedings in a thoroughly superficial manner." The vast majority of visitors are the staff and students and draughtsmen, and architects interested in education. The public, alas! is a rather poor attendant. Some drawings are flashy, others dull. In design, temperament expresses itself, and so does draughtsmanship, which is also in key with the the subject. "Splashy" drawings may be the ebullition of enthusiasm as well as the nefarious trickery of the shoddy. "Tightness" in draughtsmanship is a useful asset; but one palette is insufficient for every purpose, as no doubt "Positive" realises when he is preparing a charming picture to catch a client's eye.

The omission of perspectives from the Academy may be due, not to the dearth of perspective renderers (in my opinion, and that of many of my colleagues, there is no dearth), but to a general feeling amongst the thoughtful that many a poor design was hung on the Academy walls because it was so competently presented, and not by the author's hand. The excessive skill of the draughtsman, concealing poverty in design, and not the diminution of the class of "renderers," is the more likely explanation of this change of policy.

Drawing of all types has, in my opinion, vastly improved from that of pre-War days. Gone are the hairy scratchy perspectives, replaced by broad work giving the true value of mass. Banished also are the pre-war competitive drawings in coarse black line, silhouetted in a broad band of ink, drawings at once tricky and in execrable taste. Clean, crisp working drawings on linen have replaced the muddled coloured pencil work of pre-War days with full sizes and details interlaced all over the sheet.

Let "Positive" ask a builder whether he does not think that the working drawings of the past decade show an improvement over the old standard. He will, I think, find the answer is one which would not support his argument, and these same drawings of to-day are, I repeat, largely the work of school-trained men.

"Negative."

[*.* Correspondence on this question is invited.—Ed.]

DOMESTIC BUILDING AND QUANTITIES

By J. R. Taylor.

Many architects, when inviting tenders for domestic buildings, cannot be persuaded to have proper bills of quantities prepared. They argue that they obtain lower tenders for this class of work without quantities, and, in many instances, they are right, because, unable to afford the services of a properly qualified surveyor, many builders entrust the work of preparing their estimates to those undertaking this business at such low fees as to make it a matter of impossibility to devote the necessary time to working up a fully detailed estimate. This often results in the lowest tender being received from the builder who makes the biggest mistake.

Builders who do retain a full-time surveyor as part of their staff are in the long run in a much safer position, but the percentage of successful estimates prepared without independent quantities is so low and the expense of preparing estimates so high that they refrain from tendering for this class of work unless very much in need of a job, or in fear of offending the inviting architect. This fear of giving offence by a refusal to tender in many cases leads to accommodation estimates. Knowing that he has only a very outside chance of securing the job at a figure that will leave him any margin of profit without putting in either inferior material or workmanship, faced with the cost of preparing a close estimate, and not wishing to head the list of tenders with a safe guess, a builder will often get over the difficulty by obtaining a figure from another tenderer which will be likely to put him somewhere in the middle division, but will in no case get him the job. This sometimes leads to unforeseen results. It occasionally happens that among the builders invited there is only one who is at all keen about the job, and the remainder wish to avoid the costs of preparing an estimate. Builders A, B, C, D are not keen on the job, X wants it. A telephones a day or two before the closing date asking for a price from B, who already has one from X. C gets careful quantities prepared, and D sends in a safe guess. When the tenders are opened C's estimate indicates that X has made a very considerable error, and he withdraws. The architect offers the work to B, who must refuse, and then to A, who is in the same predicament. If the architect is young it takes years to convince him that the builders have not formed a ring to maintain prices, but if he is older he has a shrewd idea of what has happened.

Warned by experience, the architect resolves not to let the list of tenders be known until the contract is signed, but usually finds that it is extremely difficult to keep the figures secret. If he succeeds and the lowest tender is from a builder who has made a considerable mistake, he may still have difficulty in getting a signed contract. Many builders immediately on notification of acceptance have their estimates checked with great care, because at this stage the expense is thoroughly well worth while.

Assuming that in spite of the builders' bad mistake the contract is signed before the builder discovers it, is the architect or his client likely to really benefit? As a general rule the answer is definitely no. If the builder goes on and positively does give everything that is specified, then the client is getting something for which he is *contracting* but *not paying*. Some builders will abide by their mistake and still give of their best, but human nature being what it is the test is frequently too severe. In any event, in such cases it is only to be expected that the architect will have all his own mistakes well charged up to his client in the final bill of extras.

From time to time builders have by joint action endeavoured to reach agreement with the architects that all new work and all alteration work of any magnitude shall be based on quantities prepared by qualified surveyors. This is the only way that is fair to all parties to the contract, and is by far the best way of ensuring that the work shall be well carried out. Builders have the greatest possible respect for qualified quantity surveyors. They know well that nothing is to be gained by omitting any of the work or executing it in an inferior manner as it will be measured out. On the other hand they are quite prepared to carry out any additional work without haggling or manœuvring in order to make up leeway by means of fat supplementary estimates; they know that the surveyor will measure up and value the extra work at a price fair to all parties.

Standard Quantities.

The surest way to obtain the lowest possible price in competition is by means of quantities prepared in accordance with the standard method of measurement. By means of quantities prepared on this system the estimator can safely price the work at a very cut rate because he is never in doubt as to what each item includes. In building up his prices he has not any occasion to guess whether certain labours and wastes are or are not to be included, and he needs only a very short glance at the plans to enable him to proceed with confidence. Before the standard method of measurement was adopted, and at the present time, where it is not adopted, builders experience was and is that a bill of quantities prepared by London surveyors inclined to lift the provincial estimators pricing on account of the work being measured in greater detail. On the other hand the London estimator was badly handicapped when pricing provincial quantities on account of the paucity of detail. This led to many disputes, and a good deal of unpleasantness at the completion. It is, however, difficult to convince some young architects of the wisdom of employing qualified surveyors, and many of them only do so after they have been severely worsted, and have received some very plainly worded opinions from a client, much annoyed at being called upon to pay unexpected sums on acount of incomplete measurements. After such a happening they employ a surveyor or alternatively endeavour to do without quantities in their contracts. In the latter case, not being able to secure tenders from the better class builders, the quality of their buildings will probably be lower, with unsatisfactory results to their practice.

Guaranteed Quantities.

The number of surveyors prepared to guarantee the accuracy of their quantities is increasing. It would be a very good thing to find this guarantee written in at length in the preamble of the bill. It would carry very great weight with the builder when considering his estimate. It would also act as an inducement to a client hesitating to authorise his architect to have bills prepared. The implied warranty of care and skill is not sufficient in practice and in many instances is quite without value. It should be accompanied by a change in the conditions under which the fees are usually paid. Instead of becoming due for payment out of the proceeds of the first certificate they should be paid *pro rata* to the amount of the certificate. This would not bear any more hardly on the surveyor than the retention of money of from 10 to 20 per cent. does on the builder. At present, if a building owner goes bankrupt during the progress of the work the architect has generally received the greater part of his fees, the surveyor all his fees, and the builder is left to shoulder the burden of responsibility. One remedy is to certify for the full value of the work executed and material delivered, and the payment of the retention money into a special deposit account where it bears interest until finally released at the end of the maintenance period. Many fair-minded architects are in favour of this course, and this practice is on the increase. On the face of it, it is so obviously the fair thing to do that a builder might reasonably look at the client and architect's consent to these terms as an index to the treatment he is to expect with regard to other matters. If adopted all round this also would be reflected in the estimate, as a builder's payments for interest on overdrafts amount to a large sum in the year in the great majority of cases.

Architect as Quantity Surveyor.

It is a very old saying that a man who is his own lawyer has a fool for a client. The preparation of accurate bills of quantities requires an altogether different type of brain from that of the artist. It is a very rare thing to find both qualities, calculation, and artistic design, shown in the work of the one individual. One has only to remember the many times that architects have stated that engineers are lacking in appreciation of architecture, but are invaluable for calculating stresses and strains, to feel some surprise that, while claiming to be artists, they hold on to a class of work demanding an entirely dissimilar skill and very close, uninterrupted application. It is seldom that the architect can so entirely shut out all other matters while preparing quantities as is necessary to avoid errors creeping in. Recognising this, some who prepare their own quantities endeavour to evade responsibility, though taking the fees by some such clause as this:—

"These quantities are prepared for the assistance and guidance of builders tendering, and, while care has been exercised in their preparation, they are not guaranteed to be accurate. The builder is to include in his tender for everything necessary for the complete performance of the work according to the true intent and meaning of the specifications and plans, and nothing shall be allowed for the alleged omissions or deficiencies in the measurements or in the plans or specifications or any of them."

This and similar clauses in conditions of contract are as pitiable a confession of weakness as can well be imagined when coming from those who hold themselves out to be fully qualified professional men, and are lowering to their prestige.

Merchandise Marks Inquiry: Wallpapers.

The inquiry as to whether imported wallpapers should be required to bear an indication of origin will be resumed at 11 o'clock on Monday, January 20, and at 10.30 a.m. on Tuesday, January 21. The inquiry will be held at the Board of Trade Offices, Great George-street, S.W.1. Communications should be addressed to the Secretary, Mr. E. W. Reardon, at that address.

Tars for Road Purposes.

The British Engineering Standards Association has now issued a revised Specification for Tars (Nos. 1 and 2) for road purposes which represents a considerable advance upon the Ministry of Transport (Roads Department) specifications issued as British Standard Specifications in April, 1928. The specification (76-1930) having been considered and approved with slight modifications is now issued by the British Engineering Standards Association as a British Standard Specification and has the full support of the Ministry of Transport. It covers, as formerly, tar for the surface tarring of roads and making tarmacadam.

Copies of the new specification (No. 76-1930) may be obtained from the Publications Dept., British Engineering Standards Association, 28, Victoria-street, S.W.1, price 2s. 2d. post free.

THE R.I.B.A.

GREATER LONDON REGIONAL PLANNING.

Mr. H. V. Ashley, V.P.R.I.B.A., occupied the chair on Monday night at 9, Conduit-street, when, before a large attendance, Dr. Raymond Unwin delivered a paper on "Regional Planning, with special reference to the Greater London Regional Plan."

Many would recall, said the lecturer, the fascination with which they first realised how the mysterious and beautiful form structure of crystallisation could be induced to spread through a formless solution. Some might remember how the molecules or atoms of a refractory mass could be stimulated by example (the introduction of a minute crystal of the substance being enough to rouse their traditional love of order) to cause the most active to set to patterns, these starting an enthusiasm for their appropriate movements which inevitably, if gradually, spread through the whole mass. The introduction of the principle of planning into human affairs that had long been allowed to develop haphazard had a similar effect. Once the order of a plan was established over a certain area, the boundary, where order ended and disorder commenced, formed a line of nonconformity, stimulating attempts to remove the irritation by spreading the order further and further. Within the short space over which the older generation could now look back, we had seen such a change in progress. We remembered when buildings were generally considered in isolation. Then one or two examples of intelligent land planning and harmonious relations established between the buildings as in Bedford Park were dropped among us like the minute stimulating crystals. Thereafter incongruity between buildings and their surroundings was no longer accepted as inevitable; a sense of disorder and irritation was aroused. Those who felt the discomfort most keenly sought to plan larger areas; and the order spread to more extensive sites, to whole villages, suburbs, and even new towns. Then came the sympathetic statesman, and in 1909 Mr. John Burns gave the power to local authorities to spread this order over those parts of their district "likely to be used for building purposes"; a phrase fairly liberally interpreted. The planning could, however, no more be limited by local government boundaries than by the acreage of a single site. Active authorities began to plan in their neighbour's ground; then they formed groups or regional committees to extend the area; these groups further combined and we had now reached the stage of Greater Regional Planning Committees; and the end was not yet. Across the Channel we might see provincial planning; across the Atlantic State and even Inter-State Planning Commissioners were actively at work. To-day, another sympathetic statesman, twenty years after, presided in the place of Mr. John Burns over the same department, for Mr. Arthur Greenwood has just said that the first Town Planning Act, having served its purpose, was now out of date. And he had promised extended powers. But planning could not stop even at the greater region. Already main traffic matters were passing from local to national control; a Commission was sitting to consider the question of national parks, and planning might be expected ere long to carry its crystalline structure to the natural limits set by the sea shore to our island home!

The site or regional plan, like the queue, greatly added to the sum of effective liberty by defining the limits and protecting the sphere within which each could move without being obstructed by others; and by bringing that sphere into appropriate relation with the many others with which each must have dealings.

One main reason which justified the Minister in speaking of the Town Planning Act as growing out-of-date was that it did not give reasonable opportunities for regional planning, or adequate facilities for site planning. At present Regional Committees must be content to give advice only, or they must take over from their constituent local authorities the complete making of their schemes. The first alternative was ineffective, and must remain so because regional proposals would often be as much outside the province as they were beyond the financial resources of the individual local authorities. The second unduly deprived the local authorities of their proper freedom to plan their own district, and threw on the regional authority a mass of detail planning not easily to be coped with. Regional Planning Schemes should be made effective, therefore, without depriving the local authorities within the region of their freedom to make Town Planning Schemes for their areas.

Nothing was more essential for good regional planning than power to secure an adequate background of open land. So long as anybody might build anywhere, and no effective power to control the distribution of building development existed, the evils of sporadic building and ribbon development would continue, in spite of anything we and the Council for the Preservation of Rural England might say or do. Under Town Planning Schemes reasonable regulations could be made as to what class of building might be erected in each area, and as to the height and character of the buildings, without incurring liability to compensation. Any attempt, however, to determine where building might best be located, and where the background of open space should be preserved, involved a liability to compensation which no planning authority would face. No doubt there were many amendments to the Town Planning Act which would be very valuable; but as technical men seeking to apply the right principles of planning and design to the use most important were :—

1. Regional planning must be made effective without depriving the local planning authorities of the right to make schemes for their districts within the regional framework.

2. Greater facility must be given in the Local Planning Schemes and in Regional Schemes also, for securing good site planning as land becomes ripe for development or redevelopment.

3. Planning schemes should be made applicable to all land, whether built upon or not.

4. The present powers of zoning areas for different classes of building should be extended to permit the reasonable allocation of areas for building development and the reservation of other areas from such use, without compensation from the planning authority, but with power to adjust between owners any gain or loss of building prospect resulting.

The preliminary study of the difficult task set before the Greater London Regional Planning Committee by the Minister of Health showed that only on the basis of powers such as those sketched could the work be adequately accomplished. The population of the County of London had been diminishing since the Census of 1901. Since then, the whole of its natural increase, due to excess of births over deaths, had been migrating outwards, plus the actual reduction in numbers. This population flowing outwards had mainly settled within the Greater London region. This change of flow was perhaps explained by the movement of industries into certain sections, to which attention was recently drawn by the Chief Factory Inspector. In spite of the good effected by Regional Planning Committees and Town Planning Schemes (and mainly owing to the want of power to locate development) this wide stream of population spreading over the Region from the congested centre and now also from outside, had settled haphazard without any co-ordinating design. It had caused the outstanding example of sporadic building, aided by the rapid growth of motor transport which had removed the limitation previously set by the need to be within reasonable distance of a railway station. The outward movement itself was not the evil. On the contrary it must be encouraged, unless the congestion of traffic in the centre was to become still more intolerable. Nor did the area of land required to give generous accommodation for this population, raise a difficulty. If development were guided into reasonably self-contained nuclei, forming attractive urban groups of different sizes, spaced out on an adequate background of open land, there would be ample space in the Region for any increase in population which might reasonably be expected, still leaving the greater part of the area as open land. Provision could be made in generous measure for playing fields, parks, pleasure grounds, wild country reserves, allotments, or aerodromes, and for the many other purposes for which an urban population needed open land.

If productive industry might be regarded as the economic foundation of the social structure, commerce naturally followed. The expansion of commerce in the central area was the compelling force, supplementing a widespread desire on the part of many town dwellers to live in less congested and more rural surroundings; as such it was largely responsible for the great exodus to the outskirts. Two considerations dependent on a general plan might be mentioned, neither of which had received enough attention. The continued efficiency of a great organisation like the City of London required that the most important operations, on which the welfare of the City and of the Empire depends, should be provided for in an area where they were not constantly hindered by crowds engaged in unimportant details. Such confusion in and about the board room, Such confusion in and about the board room, the manager's office or the quarters of the general staff, would not be tolerated in any other organisation. The second consideration arising from the growing size of London's business centre was the reservation, in immediate connection with that centre, of certain carefully selected and adequately protected residential areas, to accommodate comfortably the selected staffs which should be within call in connection with great enterprises. Planning of the built-up areas could alone bring into play these principles of redistribution in reference to central functions. Large commercial and retail trade organisations were showing a tendency to maintain only the essential central functions in the congested areas; and to decentralise such departments as the storage of records, or the conduct of routine business, which could function as well or better outside. These tendencies deserved encouragement from the city planner.

A reasonable proportion of open land for playing fields and pleasure grounds should be reserved in connection with each unit of urbanised population. To provide adequately for those who wished to play open-air games of all kinds in an urban area, there should be provided 7 acres of land for every 1,000 of the inhabitants. For the Greater London Region, this standard indicated a present need for about 200 square miles of open space and playing field.

As regards amenity, provided that the surrounding area could be protected from sporadic development, compact units of population of 4,000 to 6,000 people, and well designed groups of such units, could remain so nearly in touch with open country as to secure many of the advantages of country life. The selection of southern slopes which afforded the best sites for such residential units would keep the northern slopes free to afford a rural prospect. Valleys and flat meadows less suitable for residential development, might afford good playing fields and belts of open land. If, however, belts of open space were required for the purpose of dividing or isolating residential units, even wide valley belts would be less effective than strips running along the ridges. The preservation of the sky line was more

effective to secure rural outline to a view, than the preservation of much wider lands in the hollow.

That the better distribution of industry and population might result in the reduction of traffic congestion, the units of population should be made as self-contained as possible. While the best means of intercommunication for necessary movements was desirable, the congestion of this useful traffic by large volumes of that which was due to the bad placing or faulty relations of the different parts, was thoroughly harmful. The growth of motor transport which had extended the possible range for sporadic development, had also changed the character of traffic problems. To meet this, new types of road and methods of road planning were now needed. The outcry against ribbon development had laid stress on the destruction of amenity. Destruction of life, and obstruction of through traffic were equally serious results of unsuitable development on main road frontages. The motor car had rendered impossible the joint use of highways for traffic and for building frontage development. Highways should be kept free from the obstruction and danger caused by numerous branch roads, or carriage drives, and by turning, standing, and crossing vehicles. The safety of the inhabitants must be provided for by arranging service roads and footpaths giving access from the dwellings to shopping centres, schools or other resorts, and reducing to a minimum the need to cross main highways. This principle was now so clear, that general effect should be given to it. No frontage development should be permitted on highways in future, without the provision of subsidiary service roads. As far as possible development should take place in compact units from which convenient access to the highway was arranged, but which were set back from it, and so planned that local intercommunication could take place with the minimum need for crossing the main highway. The North Orbital Road, which was likely to be one of the next to be put in hand, afforded a good opportunity for demonstrating these principles, which were as essential for safety, economy, and efficiency, as they were for the preservation of amenity.

Sir Edgar Bonham-Carter moved a vote of thanks to Dr. Unwin. The question of town planning affected London very greatly. Under the present Act it was certain that London would not turn out as we wanted it. We should give regional planners their way, as Dr. Unwin had suggested. Town planning brought one injustice with it, namely, that it increased the values of some land at the expense of other sections. Compensation in some way should be provided.

Colonel C. H. Bressey, C.B.E., in seconding, pointed out in very humorous fashion the evils that ribbon development was bringing, and suggested that lack of communal spirit was responsible for it. Napoleon had said that an army moved on its stomach: the speaker was of the opinion that ribbon development crawled forward on its cooking-stove! He would like to see every new district laid out architecturally round a central square whose principal feature was a communal kitchen. Then, perhaps, houses would be built other than straggling along main roads.

Mr. C. R. Ashbee referred to the West Kent Regional Planning Scheme, which had broken down because of the failure of architects, town planners and the strong body of local residents to agree on principles. He thought that the R.I.B.A. might well look into the matter and obtain some co-ordination of town-planning principles.

Sir Theodore Chambers said that the whole difficulty of town planning lay in defining the collective and individualistic standpoints. Once some system of pooling land and of settling petty problems of unrelated small areas was arrived at, then town planning would go ahead.

Mr. T. Alwyn Lloyd said that town-planning schemes too often lacked vision. As far as ribbon development was concerned, he felt that the parkway seemed to be the solution.

Mr. E. G. Culpin said that Dr. Unwin had put into the Greater London Scheme the best of his thought. London's difficulty was its vast area and the immense number of local authorities, which raised political difficulties. These would have to be composed before success was achieved

Mr. Montagu Harris (Secretary of the Greater London Regional Planning Committee) said that people asked what the Committee[1] had done. The Committee had been in existence only two years, and its problem was an immense one. However, the first report would be published in the next few weeks, and people could see for themselves. The Committee's difficulty was to co-ordinate the local authorities, but there were signs that such a position was coming to be. He wished that Dr. Unwin would read his paper, not to the members of the Committee, but to the 140 local authorities whose territory composed the regional plan.

Mr. W. R. Davidge said that London was being planned 100 years ago. Until the middle of the nineteenth century the Government had always assisted the development of London, but in 1855 it handed over to the Metropolitan Board of Works, which had no thought of Greater London. The L.C.C. followed on the same lines. We had to think of London and its environs not parochially but regionally.

The Chairman then called upon Messrs. Murray Easton and Howard Robertson to receive the R.I.B.A. London Architecture Medal and Diploma for 1928, for their building, the Royal Horticultural Society's new hall in Greycoat-street, Westminster. He congratulated the architects on their success and the Society on having so fine a building for their new headquarters.

Mr. Easton replied briefly, thanking the Institute for the great honour they had bestowed on his partner and himself. They would like, however, to take the credit for the intention of the building as representing a trend of the times rather than for any architectural merit it might possess.

Sir William Lawrence (of the Royal Horticultural Society) and Captain H. Wykeham (of Messrs. Foster & Dicksee, Ltd.) also spoke.

The Chairman then presented the Deed of Award of Prizes and Studentships for the current year. The successful competitors were as follows:—

The Tite Prize: a Certificate and £50 for Design.—The subject set for this year was "A Monastery."—Arthur Charles Collins (P.W.D., Melbourne). Honourable Mention: E. F. Stacy (Wood Green), H. Banister (Liverpool), E. F. Starling (Croydon).

The Soane Medallion: a Silver Medal and £150 for Design.—The subject set for this year was "A Sports Club."—J. L. Martin (School of Architecture, Victoria University, Manchester). Honourable Mention: S. E. T. Cusdin (A.A., London).

The Owen Jones Travelling Studentship and £100.—Kathleen A. Veitch (London).

The Royal Institute Silver Medal and £75 *for Measured Drawings.*—Sadie Speight (Manchester).

The Royal Institute Silver Medal and £50 *for an Essay.*—Ronald Aver Duncan, A.R.I.B.A. (A.A., London), for an essay on "Science and the Art of Architecture." Honourable Mention: W. A. Eden (Birmingham).

The Henry Saxon Snell Prize.—Kenmuir Harry Read, A.R.I.B.A. (Polytechnic, Regent-street, W.1).

The R.I.B.A. (Alfred Bossom) Travelling Studentship: Gold Medal and £250.—Not awarded. Silver Medals awarded to:—E. Forster, Muswell Hill, and Harold B. Rowe, A.R.I.B.A., Newport, Mon.

The Grissell Gold Medal and £50.—Not awarded.

The R.I.B.A. Hunt Bursary, £50.—Trevor Mervyn Daniel, A.R.I.B.A. (School of Architecture, University of Cambridge).

The R.I.B.A. Neale Bursary, £70.—William Arthur Smith Cormack, A.R.I.B.A. (School of Architecture, Robert Gordon's Colleges, Aberdeen).

The Arthur Cates Prize: a sum of £50.—Not awarded.

The Ashpitel Prize, 1929.—Ralph Herbert Brentnall (R.W.A., Bristol, School of Architecture).

The R.I.B.A. Silver Medal for Schools of Architecture recognised for exemption from the Final Examination.—J. L. Martin (School of Architecture, Victoria University, Manchester). Honourable Mention: Wm. Crabtree (Liverpool School of Architecture).

The R.I.B.A. Bronze Medal and £5 *in Books for Schools of Architecture recognised for exemption from the Intermediate Examination.*—Alexander George Gibson (A.A., London).

The R.I.B.A. Prizes for Public and Secondary Schools.—Essay: Miss Dorothy Pilgrim (Notre Dame High School, Battersea). The following competitors were commended: George Richardson (Birkenhead Institute), A. C. L. Whistler (Stowe School), J. L. Carr (Castleford Secondary School). Sketches: H. I. Gordon (Hymers College, Hull). The following competitors were commended: Raymond Bacon (Grammar School, Great Yarmouth), R. L. Young (Queen Mary's School, Walsall).

THE EXAMINATIONS, DECEMBER, 1929.

The Final Examination qualifying for candidature as Associate R.I.B.A. was held in London and Edinburgh from December 4 to 12, 1929. Of the 76 candidates examined, 34 passed (9 in Part 1 only), and 42 were relegated. The successful candidates are as follows:—

G. M. Boon.
A. R. Brenchley.
R. H. Brentnall.
G. E. Bright.
T. Burrington (Part 1 only).
J. P. Chaplin (Distinction in Thesis).
W. J. P. Cox.
J. G. Dower.
D. R. Duncan.
R. C. Fisher.
Margaret Gillett (Part 1 only).
A. D. A. Haskins.
A. Johnson.
S. J. Kemp.
W. C. Kemp (Part 1 only).
A. L. McMullen.
E. M. Marrett.
F. J. Maynard.
C. W. Neil.
R. F. Orfeur.
C. E. Pickering (Part 1 only).
G. L. Price.
A. L. Priest (Part 1 only).
H. F. Rea.
A. P. Robinson.
V. C. L. Saunders (Part 1 only).
G. J. S. Segar-Owen.
R. Shaw.
G. H. Shepherd.
S. F. Soper (Part 1 only).
F. R. Steele.
G. E. Tassell.
T. W. Thomas (Part 1 only).
P. O. G. Wakeham (Part 1 only).

The Special Examination qualifying for candidature as Associate R.I.B.A. was held in London and Edinburgh from December 4 to 10, 1929. Of the 20 candidates examined, 6 passed (one in Part 1 only) and 14 were relegated. The successful candidates are as follows:—

T. Duffy.
R. O. Harris (Part 1 only).
L. S. Stanley.
G. S. Taylor.
R. N. Wakelin.
W. E. Young.

The Examination in Professional Practice for Students of Schools of Architecture recognised for exemption from the Final.

The Examination was held in London and Edinburgh on December 10 and 12, 1929. Of the 67 candidates examined, 44 passed and 23 were relegated. The successful candidates are as follows:—

H. J. Ashwell.
I. Baillie.
R. C. D. Boger.
R. Bradbury.
R. McC. Butler.
D. Carr.
E. J. Carter.
G. A. Cassells.
I. N. Cowin.
S. E. T. Cusdin.
H. R. Ellis.
Evelyn Freeth.
A. B. Grayson.
L. D. Harris.
N. B. Hillier.
J. L. Hughes.
Elizabeth S. King.
W. H. Kininmonth.
R. S. Lavers.
G. R. Linfield.
A. I. D. Macdonald.
H. S. Macdonald.
J. L. Martin.
R. H. Matthew.
J. M. Murray.
J. A. V. Nisbet.
V. M. Patker.
W. H. M. Penn.
Beatrix J. Phillipson.
H. G. Porter.
J. M. Richards.
H. M. Ross.
S. H. J. Roth.
R. D. Scott.
C. W. J. Smeed.
C. H. B. Smith.
J. Smith.
E. E. Somaké.
S. Sutherland.
H. J. Tanton.
Patricia B. Webster.
A. E. Westerman.
S. D. Wheeler-Carmichael.
H. H. Wilkinson.

GENERAL NEWS

Professional Announcements.

Messrs. T. M. Deacon, Son and Addiscott (quantity surveyors) have taken into partnership Mr. R. M. Knight, who has been with them for many years.

Mr. W. H. Brewer, of Messrs. Ford & Brewer, quantity surveyors, London, has opened a branch office at 18, Mill-street, Maidstone, where he will carry on, in conjunction with his London office, his practice as quantity surveyor. He will be pleased to receive catalogues at that address.

The committee appointed by the Council at their October meeting recommended that Mr. C. J. Norton, now a temporary officer on the staff of the County Surveyor, be placed on the permanent staff of the County Surveyor's Department as chief architectural assistant.

Komisarjevsky's Cinema Decorations.

The Granada Theatre at Dover was opened on Wednesday last, seating 2,000. The "Granada" interior decorations are by Komisarjevsky. The architect is Mr. Cecil Masey, F.R.I.B.A., 15, Caroline-street, W.C.1.

Painter-Etchers' Society: New Associates.

The following have been selected associates of the Royal Society of Painter-Etchers and Engravers:—Mr. Arthur Briscoe, Mr. Austin Frederick, Miss Clare Leighton, and Mr. Joseph Webb.

York Minster Damaged.

A pinnacle was blown off the west front of York Minster during the recent fierce gale. The masonry, which weighed three-quarters of a ton, fell 200 ft. into the cathedral enclosure, breaking into countless pieces. Considerable damage was caused in other parts of the city.

National Certificates and Diplomas in General Building Technology.

The Board of Education and the Institute of Builders have approved the draft rules of a scheme of National Certificates and Diplomas in General Building Technology. We propose to refer to this matter at greater length in our next issue.

Conference on Rural Beauty at Oxford.

A conference representing many varied interests concerned with the preservation of the beauty of rural England has been convened to meet at University College on January 18 under the presidency of Mr. H. A. L. Fisher, Warden of New College. Delegates will be present from the Ministry of Transport, the Ministry of Health, the Thames Conservancy Board, the Thames Valley Regional Planning Committee, the Rural Community Council for Oxfordshire, the women's institutes, the Surveyors' Institution, the Oxford Corporation, the Women's Co-operative Guild, and various other bodies.

St. Bartholomew's Close.

The Governors of St. Bartholomew's Hospital, Smithfield, have acquired St. Bartholomew's Close, which was part of the original foundation of the neighbouring church of St. Bartholomew-the-Great. The Close is built over with shops, offices and warehouses. Hogarth was born there, and it was his early association with the hospital that led him to paint the famous wall pictures on its main staircase representing the Good Samaritan and the Pool of Bethesda, for which he was made a governor. The purchase of the Close is part of the great reconstruction scheme of the hospital now in progress.

Henry Saxon Snell Prize.

The Henry Saxon Snell Prize was founded to encourage improvements in the construction or adaptation of sanitary appliances, and is to be awarded by the Council of The Royal Sanitary Institute at intervals of three years, the funds being provided by the legacy left by the late Henry Saxon Snell (Fellow of the Institute). The Prize in the year 1930 will consist of Fifty Guineas and the Medal of the Institute, and is offered for an essay on "Improvements in the Sanitary Provisions of Schools." Essays must be delivered on or before August 30, addressed to the Secretary of The Royal Sanitary Institute, 90, Buckingham Palace Road, London, S.W., from whom full conditions may be obtained.

London Street Problems.

Convened by the London County Council, a conference of authorities and bodies intimately concerned in the London subway question will be opened at County Hall on Tuesday next. The conference is a sequel to the Holborn explosions and fires of December 20 and 21, 1928. The Commission of Inquiry into that disaster found that the explosion occurred in the Post Office tube, and was due to the ignition of a mixture of coal gas and air. The Commission came to the conclusion that the possibility of co-ordinating the control of underground services in London should be considered, and suggested that possibly the best means of providing this co-ordination would be to set up some new authority, with jurisdiction over the whole of the urban area in and around London.

A Forth Bridge.

The proposal to build a road bridge across the Firth of Forth at Queensferry, about a mile to the east of the railway bridge, at a cost of about £6,000,000, was again brought to the notice of the Minister of Transport (Mr. Herbert Morrison), on Tuesday, by a deputation representing the local authorities of the neighbourhood. Replying to the deputation, the Minister suggested that the best plan would be for all the local authorities interested to get together and give renewed consideration to the following points:

(1) The economic justification for the erection of a bridge at Queensferry.

(2) The alternative, an efficient ferry service at Queensferry with a new bridge at Alloa.

(3) The financial contributions which they would be prepared to make towards the cost of the scheme.

The British Museum Library: Plans for Rebuilding.

The Trustees of the British Museum have obtained the sanction of the Treasury and the Office of Works to plans for extensive rebuilding and refitting in the Museum Library. It has been decided to dismantle gradually the present iron shelving upon which the books are supported, and to replan the accommodation entirely with steel shelving, which may be more economically disposed and more secure. The work, which may take more than 20 years, is estimated to involve an expenditure of £15,000 a year. The quadrants, besides being reshelved, will be converted from three-story constructions to five stories, and new foundations will be laid sufficiently firm to allow of an extra two stories being superimposed, if need be, later. The outer walls will probably not be pulled down.

Beauty of Cotswold Villages.

It was stated at a recent meeting of the Gloucestershire Highways Committee that the inhabitants of Willersey, Weston-sub-Edge and Mickleton, some of the most beautiful villages in the Cotswolds were still very anxious and feared that treasured buildings would be destroyed as the result of the fixing of improvements and building lines. The chairman (Major F. W. B. Cripps) said he wished to emphasise the fact that the building lines were laid down to prevent further building within the lines. There was no intention whatever of pulling down any beautiful Cotswold houses. The lines would, in fact, be of great assistance in preserving the villages from despoliation by the erection of new and disfiguring buildings. By-pass roads round the villages were being pressed for, but he would point out that it was the very beauty of the villages which attracted the traffic.

Leeds University New Buildings.

Another large section of the scheme of new buildings for the University of Leeds will shortly be commenced, plans having now been approved for the new building to accommodate the Department of Chemistry—inorganic, organic and physical. This chemistry building stretching, when completed, from the Physics Department to Woodhouse-lane will, together with the mining block at right-angles to it, form the north elevation of the new scheme. The east elevation will run alongside Woodhouse-lane for a distance of about 180 feet, and at its lower end another wing, containing a number of large laboratories, will reach back a distance of 240 feet towards the physics building, and will form the southern side of the rectangle of which the complete building will consist. The erection of certain portions of the chemistry block is being postponed, but even with this omission the building shortly to be started will have a floor space of some 95,000 square feet. At the moment, bills of quantities are being prepared, but it is expected that tenders will be invited in about two months' time. The architects are Messrs. Lanchester and Lodge, FF.R.I.B.A., 19, Bedford-square, W.C.2.

Lectures on Italian Art.

The first of a series of lectures which has been arranged in view of the Exhibition of Italian Art at Burlington House was delivered on January 1 by Mr. Roger Fry. Speaking to a large gathering on "Early Italian Art," he commented on the chief characteristics of the work of the Italian artists, and pointed out that they had a natural bias towards sensuous beauty, quite apart from the expression they had given or the use they had made of it. He attributed this bias to their foundations in classical art and to the fact that they were recalcitrant to Gothic art. Various examples of the conflict between the two tendencies were illustrated by lantern slides.

Dr. Dearmer will give a course of nine lectures, illustrated with lantern slides, on Italian painting with special reference to the Exhibition at Burlington House. The lectures will be held in the Great Hall, King's College, Strand, and will be on Tuesdays, commencing January 21 and ending March 18, at 5.30 p.m.

A series of lectures on Italian art, planned by the Y.W.C.A., will be given on Wednesday afternoons, January 22 and 29 and February 5, by Dr. Borenius, Mr. Eric Maclagan, and Lord Crawford respectively (course tickets 1 guinea). At another series, planned specially for professional and business women, on Tuesday, January 21 and 28, and February 4, at 8.15 p.m., the lecturer will be Miss Alice McLaren (course tickets 6s.). Further particulars of each series will be given by the Secretary, Y.W.C.A., 17, Clifford-street, Bond-street, W.1.

COMPETITION NEWS

Competition for a Pleasure Resort at Gosport.

The following notice has been issued by the R.I.B.A:—

"Members of the Royal Institute of British Architects and of its allied societies must not take part in the above competitions because the conditions are not in accordance with the published regulations of the Royal Institute for architectural competitions."

COMPETITIONS OPEN.

	Particulars published in "Builder."	Sending in date.
Municipal Buildings, Assembly Hall and Law Courts in Victoria Park, Swansea, for the Corporation. Premiums: £750, £500, £300, £200. Assessor: Mr. H. V. Ashley, F.R.I.B.A. Mr. H. L. Lang-Coath, Town Clerk, Guildhall. Dep. £2 2s.	July 5	Jan. 18
Designs for Anzac Memorial, for the Trustees, to be erected at a cost of £75,000 in Sydney, N.S.W. Conditions from Agent-General for N.S.W., Australia House, W.C.2. Copies also at R.I.B.A.	Aug. 30	Jan. 24
New Police and Fire Stations in Manchester-rd., for Accrington T.C. Mr. H. J. Rowse, F.R.I.B.A., assessor. Premiums of £250, £150 and £100. Town Clerk, Accrington. Dep. £2 2s.	Oct. 4	Feb. 28

ILLUSTRATIONS

PLATES

"The Builder" Map of the County of London.

This map, which is issued every three years, and is given by special permission of the London County Council, shows the areas into which London is divided under the Building Acts, and gives a complete list of the London District Surveyors, together with their addresses and telephone numbers.

New Midland Bank, Leadenhall-street, E.C.

New headquarters for the Midland Bank are now in course of erection in Leadenhall-street, E.C. The general contractors are Messrs. Kirk and Kirk, and the following are sub-contractors:—Rubery Owen and Co., constructional steelwork; "Excellence" Reinforced Concrete Co., Hunslet, Leeds, reinforced concrete floors; Chubb and Sons, strong rooms; Barnes and Co., stonework.

Sir Edwin Lutyens, R.A., F.R.I.B.A., and Messrs. Whinney, Son and Austen Hall are the architects.

The South London Hospital for Women, Clapham Common.

This building is now in course of erection from the designs of Sir Edwin Cooper. The general contractors are Messrs. William Downs, Ltd., and the following are sub-contractors:—The Acme Flooring and Paving Co., Ltd., ward block floors; James Gibbons, Ltd., ironmongery and casements; F. De Jong and Co., Ltd., fibrous and polished plaster; Higgins and Griffiths, Ltd., electric light installation and fittings; Mumford, Bailey and Preston, Ltd., heating, ventilating, hot-water installation, sanitary equipment; Cope and Co., wall and floor tiling; J. Whitehead and Sons, Ltd., terrazzo and stone carving; J. W. Gray and Son, Ltd., lightning conductors; J. A. Lawford and Co., asphalt; David Colville & Sons, Ltd., steelwork; G. Matthews, Ltd., grates; W. H. Heywood and Co., lantern lights; Haywards, Ltd., spiral staircases; Shapland and Petter, Ltd., flush doors; J. P. White and Sons, Ltd., curtains and linoleum; Roberts Adlard and Co., roof tiling; British Luxfer Prism Syndicate, Ltd., fire-resisting glazing; William Smith, wrought-iron railings; Smith, Major and Stevens, Ltd., lifts.

National Provincial Bank.

This bank is now being erected in Princes-street, E.C., by Messrs. John Mowlem and Co., Ltd. The steelwork is by Messrs. Redpath, Brown and Co., Ltd., and Sir Edwin Cooper is the architect.

Exeter and South-west of England University.

The physics and chemistry departments of this university are contained in a building which is being erected on a site facing south. The building is faced with bricks and the roofs covered with Cotswold slating. A hall has been provided in the building which will permit of receptions and students' reunions. Introduced in the main elevations over the circular-headed windows are the county arms, which will be picked out in colour, and the arms of the divisions of Truro, Exeter, and the principal towns of the counties are in the entrances. The site, which is a falling one, has entailed the introduction of terraces at varying levels, and in designing the building this has been considered. We also illustrate on one of our inset plates a sketch design for the administration and arts block.

The general contractors for the science block are Messrs. Wm. Nicholls, Ltd., of Gloucester, and the following are sub-contractors:—J. W. Gray & Sons, lightning conductors; Redpath, Brown & Co., steelwork; Jeffreys, Ltd., heating and ventilation; Freeman & Son, Gloucestershire, slating; Marryat & Scott, lifts; Leeds Fireclay Co., sanitary fittings; Luxfer Co., leaded lights; Eric Broadbent, carving; Ames & Finnis, bricks; Baird & Tatlock (London), Ltd., laboratory fittings.

The architects are Messrs. E. Vincent Harris and S. K. Greenslade.

"A Spanish Fantasy."

This free sketch, by Professor A. E. Richardson, endeavours to catch the spirit of the buildings of old Spain. The theme is a town built on the side of a mountain. Some of the buildings can be recognised and others are purely imaginative. The original drawing is plum ink and rendered in monochrome.

No. 70, Grosvenor-street.

The work here is of a reconstruction character, the drawing-room being panelled in pine with pine pilasters, and the room furnished with period furniture. The garden room has a marble treatment, with a vista to a small formal garden. The general contractors were Messrs. Holland and Hannen and Cubitts, Ltd. Painting and decoration were by E. S. Priston and Sons; marble work by H. T. Jenkins and Son, Ltd.; and carving by A. Broadbent and Sons.

Mr. Oliver Hill, F.R.I.B.A., is the architect.

House at Angmering-on-Sea.

This butterfly plan was made for a site at Angmering-on-Sea. It seemed that a certain levity and gaiety of design would be as justified in a holiday house as it would be in holiday clothes, where the conventionalities of life may be discarded in favour of something reflecting the holiday spirit. Hence the butterfly, with its balanced wings, its eyes (one of which contains a spiral stairway), and its antennae, which meet to enclose a circular court with arcade and central pool. The materials are local pebbles and flints, with little bricks, and a pantile roof. The form of the plan is suitable for a wind-swept seaside site, as the wings enclose and shelter the loggia with its balcony over.

Messrs. Baillie Scott & Beresford are the architects.

The "Mermaid Bowl."

In connection with this drawing Mr. Maurice B. Adams writes:—"The other day, when going over my treasures, I came upon a very careful tracing taken from a drawing I made with the assistance of the late R. P. Pullan, who lent me some of his brother-in-law's sketches to illustrate the famous Mermaid bowl belonging to William Burges, A.R.A. The originals Mr. Pullan had, but I kept this pen-and-ink detail, which is full size in scale. The whole thing is extremely interesting and unlike anything now to be seen."

The following verse runs around under the waves:—

> "Who would be a mermaid fair,
> Singing alone combing her hair,
> Under the sea in a golden curl,
> With a comb of pearl."

Boys' Hostel, Lord Wandsworth Agricultural College.

This institution is an agricultural college for orphan boys. The new building provides accommodation for forty boys, with rooms for matron and master and staff. The walls are faced with Messrs. Colliers' multi-coloured bricks, and the roofs are covered with sand-faced hand-made tiles by Messrs. Ames & Finnis. The stonework to the entrance is Doulting stone. Our illustration shows the main entrance only, but the building is an extensive one, having four separate wings, two containing dormitories, one cubicles, and the other being for the service staff.

Mr. E. Guy Dawber, A.R.A., F.R.I.B.A., is the architect.

We also give on page 54 an illustration of the principal entrance to Conkwell Grange, Wiltshire, a notable example of domestic work by Mr. Dawber.

Pathological School, Greenwich.

Of this building, which has been erected from the designs of Sir Edwin Cooper, we illustrate the principal entrance, which is executed in Portland stone. The builders were Messrs. Foster and Dicksee, Ltd., of Rugby, and the clerk of works Mr. H. Whittaker. Amongst the principal sub-contractors were:—J. Avery and Co., dark-room blind; Cope and Co., tiling; Francis and Co., roller shutters; James Gibbons, Ltd., metal sashes, ironmongery, etc.; J. W. Gray and Sons, Ltd., lightning conductors; J. and E. Hall, Ltd., and Electrolux, Ltd., refrigerator; Haughton Bros., wood carving; Haywards, Ltd., iron staircases; W. H. Heywood and Co., Ltd., patent glazing; Higgins and Griffiths, Ltd., electric installations; B. Holden and Co., Ltd., blinds, carpets, etc.; Hollis Bros. and Co., Ltd., flooring; F. de Jong and Co., fibrous plaster; Luxfer Prism Synd., Ltd., patent glazing; G. Matthews, Ltd., grates; Mumford, Bailey and Preston, Ltd., heating, plumbing, etc.; W. Smith, leaded lights; Smith, Major and Stevens, Ltd., lifts and hoists; J. P. White and Sons, Ltd., furniture; and J. Whitehead and Sons, Ltd., marble.

The Holker Library, Gray's Inn.

A full description of this building was given in our issue of July 19, 1929, on page 95. The general contractors were Messrs. Trollope and Colls, and sub-contracts were carried out by the following firms:—J. A. Lawford and Co., asphalting; D. Colville and Sons, Ltd., constructional steelwork; Dorking Brick Co., Ltd., hand-made purple facing bricks; T. Lawrence and Sons, cherry-red facing bricks; J. Whitehead and Sons, Ltd., marble work, also Portland stone carving; Mumford, Bailey and Preston, Ltd., heating, hot water and ventilation; Higgins and Griffiths, Ltd., electrical work; F. de Jong and Co., Ltd., fibrous plaster work; W. H. Heywood and Co., Ltd., lantern lights; Cope and Company, wall and floor tiling; Haywards, Ltd., circular iron staircases; J. Gibbons, Ltd., ironmongery; John Bolding and Sons, Ltd., sanitary fittings; Roberts, Adlard and Co., roof tiling; Haughton Bros., wood carving; Acme Flooring Co. (1904), Ltd., wood block flooring; and G. Matthews, Ltd., fireplace interiors. Mr. Wm. Smith carried out the ornamental wrot-ironwork, balustrading, and bronze pillar lamps, and Mr. C. L. J. Doman the modelling for stone carving and fibrous plaster work.

Sir Edwin Cooper is the architect.

Memorial Library, Cranleigh School.

This library was formed by the conversion of two classrooms. It was the gift of an old Cranleighian, Mr. John Wheeler Williams, in memory of his wife, Emma Edith Clara Williams, and of his only son, John Cleveland Williams. A description of the alterations and additions to Cranleigh School carried out to the designs of Sir Edwin Cooper was given in our issue for August 9, 1929.

The general contractors were Messrs. Higlett and Hammond, of Guildford, and the following were sub-contractors:—Higgins and Griffiths, Ltd., electric lighting, J. P. White and Son and Higlett and Hammond, furniture; F. de Jong and Co., Ltd., fibrous plaster; Cope and Co., tiling; Whiteheads, carving; Hollis Bros. and Co., Ltd., wood-block flooring; James Gibbons, Ltd., ironmongery; John Bolding and Sons, Ltd., sanitary fittings; Mumford, Bailey and Preston, Ltd., heating and sanitary fittings and plumbing; Roberts, Adlard and Co., roof tiling.

House at Hurtwood, Surrey.

This house has recently been completed, and is situated on Pitch Hill, Ewhurst, a fine site with magnificent views to the south. The materials used are local stone, with green glazed Lombardy pantiles, whilst the interior is of a simple character, the walls finished with plaster and left with a rough texture. A formal garden is now nearing completion. A plan of this house was published in our issue for February 24, 1928. The builders were Messrs. James Longley and

Co., of Crawley, and the windows were supplied by Mr. R. E. Pearce. Mr. Oliver Hill, F.R.I.B.A., is the architect.

The Commercial Union Assurance Building, Cornhill.

Twelve months ago London was startled by the fall of the buildings adjoining the new Lloyds Bank opposite the Royal Exchange. The site of the new Commercial Union Assurance buildings which was left by this disaster as a huge hole in the ground is now occupied by one of our finest modern commercial buildings. We hope to illustrate this work more fully in a succeeding issue, and meantime we publish two or three characteristic features of the design. Sir Aston Webb, R.A., & Son, the architects, have, as is usual in their practice, called in the aid of craftsmen in the development of interesting detail by collaboration from the earliest stages of the design, and this will be fully apparent from our further illustrations. The building was formally opened on Tuesday this week.

Reference to this building will be found in Mr. Howard Robertson's article on "The Trend of 1929."

The general contractors were Messrs. Trollope & Colls, Ltd., and the following were sub-contractors :—Redpath, Brown & Co., Ltd., steelwork; F. J. Barnes, Ltd., stonework; Geo. Rome & Co. (London), Ltd., plastering; Sulzer Bros., heating and ventilation; A. Williams & Co., wells; Haywards, Ltd., pavement lights and steel stairs; May Construction Co., Ltd., acoustic plaster; J. R. Pearson (Birmingham), Ltd., roof railing; Crittall Manufacturing Co., Ltd., steel windows; Diespeker & Co., Ltd., floor construction; Leeds Fireclay Co., Ltd., exterior wall tiling; Milner's Safe Co., Ltd., strong-room door; Leyland and Birmingham Rubber Co., Ltd., rubber paving; Art Pavements and Decorations, Ltd., Biancola wall linings; Purcell & Nobbs, kitchen equipment; Hollis Bros. & Co., Ltd., wood-block flooring; Bratt, Colbran & Co., Ltd., fireplaces; James Gibbons, Ltd., and Carter & Aynsley, ironmongery; Waygood-Otis, Ltd., lifts; G. A. Harvey & Co. (London), Ltd., steel fittings; J. A. Lawford & Co., asphalt; Sturtevant Engineering Co., Ltd., vacuum cleaning.

New Office Building, Finsbury-square, E.C.

The site of this building (Nos. 39/45, Finsbury-square and 13/23, Cross-sreet) has a frontage to Finsbury-square of 196 ft. and 120 ft. to Cross-street, and a depth from street to street of 200 ft. It is planned for an office building which can be disposed of in sections to meet a large or smaller occupying company. It has the advantage of a frontage to Cross-street opposite South-street, which is 60 ft. wide, giving the opportunity of a feature to be seen from Eldon-street. Traffic to and from Liverpool-street has determined the position of a carriage entrance to a central courtyard. The lay-out consists of five blocks, incorporating No. 25, Cross-street, Finsbury-square block, Cross-street block, centre wing, east and west wings, which give an area of 28,000 ft. super. Lighting areas run south to north, 20 ft. wide, giving direct sunlight to the offices as the sun passes from east to west. An east entrance in Wilson-street connects by a 9 ft. corridor with the central courtyard. Corridors on the east and west will give communication on the lower ground and ground floors without passing through the main building. The staircases have been arranged so as not to cut up the floor area into compartments and to allow unrestricted sub-division. Eight passenger lifts, with a possibility of a ninth, are provided. The office accommodation is in the lower ground floor, ground floor, and eight floors over. Under the central courtyard a water-treating plant will be installed to deal with water from two deep well pumps. In the basement are placed strong rooms and the heating chambers, oil fuel, and water storage tanks, and engineer's rooms. Service corridors run north to south and east to west, where most of the drainage pipes will be open to inspection. Coal will not be housed, the boilers being oil-fired. Ample sanitary accommodation will be provided on all floors. Bath and dressing-rooms are arranged for convenience of the staff. Caretaker's quarters will not be placed at the top of the building but on the lower ground floor for easy access to the entrance halls.

The Finsbury-square front is in Portland stone. The Cross-street front in the lower story and central feature will be in cast stone, with small red brick facings above. The internal areas and lighting wells are faced with white glazed bricks with cast stone dressings.

Messrs. Howell J. Williams, Ltd., are the general contractors, and the following are sub-contractors :—Redpath, Brown & Co., Ltd., steel constructional engineers; J. A. King & Co., Ltd., tile floors; Cement Marketing Co., portland cement; Stuarts' Granolithic Co., Ltd., granolithic work; Val de Travers Asphalte Paving Co., Ltd., asphalt; Crittall Manufacturing Co., Ltd., steel sashes; J. H. Nicholson & Co., Ltd., heating; C. Isler & Co., artesian well; Waygood-Otis, Ltd., lifts; Farnley Iron Co., glazed bricks; London Brick Co., flettons.

Sir Giles Scott, R.A., F.R.I.B.A., and Mr. F. R. Gould Wills, F.R.I.B.A., are the associated architects.

An Elevational Design.

The elevational drawing which we give is from a competition design by Mr. W. Curtis Green, A.R.A., F.R.I.B.A., and Partners.

New Offices for the Somerset County Council, Taunton.

The Somerset County Council have approved Mr. Vincent Harris's new county offices, of which we illustrate an exterior view.

Peterborough Town Hall.

This building forms part of the narrow street improvement scheme, Peterborough, our illustration being from a model. The elevation to the New-street is in the Renaissance style, to be carried out in good facing bricks, with stone dressings, and the roof in the central portion will be surmounted by a cupola.

The general contractors are Messrs. J. Thompson and Sons, Ltd., of Peterborough, and the sub-contractors are :—Samuel Butler and Co., Ltd., of Leeds, steel; Grierson, Ltd., electrical work; Diespeker and Co., Ltd., floors; Luxfer, Ltd., pavement lights; Mellowes and Co., Ltd., of Sheffield, metal windows.

Mr. E. Berry Webber, A.R.I.B.A., is the architect

Church at Alassio, Italy.

The site of this church, which was generously presented to the church council, is an old garden, gently sloping up towards the north. An ancient *salita*, or cobbled pathway, runs up through the garden, under the shadow of an old pergola. On the east is a sunken lane, some 10 ft. below the garden level. On the west is a carriage road, which ends in another *salita*, climbing the hills behind. The church is planned with its main entrance, approached from a long porch, in the middle of the south wall, on the axis of pergola and pathway. The west doorway is used on ceremonial occasions, and admitted the Bishop of Gibraltar at the Consecration service.

In plan the church is divided into five bays. The piers on each side are joined together by arches, in the deep embrasures of which are the slim, round-headed windows showing a glimpse of blue sky and olive-trees. The nave roof is of open timber—Douglas fir darkened by exposure to the sunshine before fixing. The sanctuary is apsidal. On each side of the sanctuary arch is a small arched opening, at the level of the balustraded gallery which runs between the nave piers : these are for pulpit and lectern, and are approached by small staircases at the back, so that the preacher is not seen till he arrives in the pulpit. The whole interior is simply treated in rough plaster, with Borgo Varese stone as a base to wall and pier, and a dressing to the arches. The balustrades of the gallery, the altar rails, and the doors, are of Italian walnut, skilfully made by the local craftsman, Signor Stalla. The floor of the nave and gallery is of oak blocks : the sanctuary is paved with two colours of Siena marble.

Outside, the walls are plastered a sand colour, matching the dressings of Borgo Varese stone, and the roof is covered with half-round local tiles, cunningly tinted down by Signor Poretti, the builder. Beneath the sanctuary and sacristies, where the ground falls to the sunken lane, are the mortuary, heating chamber, and a committee room. These lower parts of the work are built in random ashlar, harmonising with the stonework of the lane wall, shadowed by lemons and an ancient fig tree. The work owes much to the builder, who took a keen interest in it, and to Count Vergerio, the Italian engineer, who acted throughout as resident-architect; and it has been fortunate in the affectionate care lavished on its fittings and furnishing (a task not yet completed) by a number of the resident community.

Professor Wm. G. Newton & Partners are the architects.

National Provincial Bank, Eastbourne.

The new branch of the National Provincial Bank at Eastbourne will be situated at the junction of Terminus-road and Cornfield-road, and will be erected upon the site now occupied by the Royal Hotel. It will be four stories in height, Georgian in style, and built with narrow red bricks and Portland stone, capped with roof of green Cumberland slates. Owing to the demands of modern traffic, the Bank has relinquished a portion of its site, setting back the corner of the building to relieve ultimate pressure at this point. A bold doorway at this corner will give access through a domed lobby, paved with marble and panelled in oak, to the Bank office itself. This chamber, enriched with a plaster ceiling and plaster panelled walls, will possess a notable feature in the amply contrived public counter space. Well-furnished consulting, waiting and box examining rooms will be available, in close proximity to the counter, for the use of the public. The whole of the woodwork will be of oak. The upper floors are planned for offices. Messrs. G. Bainbridge & Son, Eastbourne, are the general contractors.

The architects are Messrs. F. C. R. Palmer, F.R.I.B.A., F.S.I., and W. F. C. Holden, F.R.I.B.A. Messrs. Stonham & Son are acting as supervising architects.

Pylon of Bangkok Memorial Bridge.

These pylons, four in number, are to be built entirely of concrete. The surface treatment will be of specially selected local aggregate mixed with yellow sand and white cement, working from a rich cream colour at the base and graded to white at the top. All four faces will be battered ¼ in. in every foot and will be reeded vertically. They measure 14 ft. by 17 ft. at the base and are 60 ft. high above the high road level, and 78 ft. above the lower road. Each pylon is flanked by a stairway, 10 ft. wide, leading from the bridge level to the lower road and to the quays. The decorative sculpture will also be executed in concrete and will be symbolical of the river. It is proposed to have bronze inscription panels on the sides, and a large lantern at the top which will be illuminated at night. This lantern measures 11 ft. 6 in. by 8 ft. wide. The pylons will also be flood-lit from recesses at the base.

Sir John Burnet & Partners are the architects.

Chapel at Bournemouth.

The chapel is an addition to a convent building, designed by Norman Shaw some 50 years ago, and built in red brick, stone,

and tile hanging. It is designed for the use of the sisters, and also for the children of the orphanage school which is administered by the sisters. In plan, the axis of the old cloisters leads through into the central passage of the sisters' stalls, and a new covered way leads from an old entrance in the main convent buildings into the west porch of the new chapel. Thus the chapel building, with the covered way, encloses a garth, with the cloisters along one side. Above the continuation of these cloisters provision has been made for a future extension of the main convent building up to the chapel.

Externally, the chapel is built of 2-in. bricks of a quietly warm colour; the great bay-windows are of oak, the cornice is oak covered with copper, and the roof is tiled. The kingpost trusses of the roof are in pairs, and in the ceiling the tie-beams are cased in oak, with minor beams and boarding to form an oak canted ceiling. The bay windows, internally, are cased in oak boards with moulded edges. The rest of the walls are in sand-finished plaster. The internal sills and the skirtings and edging to the oak-block floor are quarry tiles, 1 ft. square, oiled and waxed. The floor of the children's part of the chapel slopes up from the screen to the west door, to give the back seats a better view of the altar.

Beyond the screen the choir stalls are in oak; the sanctuary steps, and the inner sill of the bay window in the sanctuary are in Hopton Wood stone, the altar-piece of dark marble, and the altar of brown oak, waxed. Above the altar the oak ceiling is panelled, and the panelling decorated with a simple patterning in dull gold, to form a soffit for the tester, which is backed with a sombre blue damask. The wall curtains on either side are a lighter blue. The altar candlesticks are of wood gilt, and were made to the architect's design by Mr. Alan Durst, who designed and carved the figure on the cross. The aumbry door was designed and made by Mr. Spencer, of the Artificers' Guild.

The general contractors were Messrs. John Thompson, of Peterborough. Heating, glazing and lighting were by Wenham & Fowler, of Croydon; electric-light fitting by Wenham & Fowler and Galsworthy; and curtains and tester vallance were made up by the workshops of the Sisters of Bethany, Lloyd-square, W.C.

The architects are Professor William G. Newton & Partners.

Newton Court, Church-street, Kensington.

This block of flats has been built for the Carmelite Fathers of the adjoining Church of Our Lady of Mount Carmel and St. Simon Stock. The accommodation consists generally of four flats on each floor of varying sizes, the usual accommodation being four bed- and two sitting-rooms with hall, and service accommodation consisting of pantry, kitchen, servants' sitting- and servants' bedrooms, with bathroom. Two bathrooms besides are provided for each flat. The shops at street level have basements under with access in rear by a sloping way. The work has also comprised a new porch to the church and a cloister corridor from the porch leading up to the monastery in rear.

The general contractors were Messrs. Leslie & Co., Ltd., and the following were sub-contractors:—H. Young & Co., structural steelwork; James, Willesden, iron windows; Wilmer & Sons, Ltd., escape stairs, etc.; Morris Singer Co., wrot ironwork; the Express Lift Co., lifts; Haden & Co., heating; the Empire Stone Co., cast stonework; J. W. Coleman, Ltd., stucco work; Roberts, Adlard & Co., Ltd., roof tiling; the Sibley Pottery Co., fireplace tiles; J. F. Ebner, oak floors; Chas. Walker & Co., marble work; Simpson & Sons, Ltd., tiling generally; Lips, Ltd., and Ramsay & Co., Ltd., ironmongery; Girdlestone & Co., electric lighting; City Iron Co., and Davis Bennett, sanitary fittings; Salter Edwards, Ltd., asphalting; J. A. King & Co., Ltd., floor blocks.

Messrs. Wills & Kauls, F. & A.R.I.B.A., are the architects.

"Bankyfield," Home Park-road, Wimbledon.

This house, which has been erected for Mr. R. P. Baker, stands on sharply sloping ground facing Wimbledon Park golf course. Externally it is faced in Atlas White cement, with a special finish to give a rough texture. The roof is of blue glazed pantiles, and the windows are metal casements; and the front door, of a blue tint to match the tiles, has a chromium-plated grille and furniture. The general contractor was Mr. C. H. King, of Malden. The sub-contractors were as follows:—Messrs. J. Jeffreys & Co., Ltd., hot water and heating supply; Luxfer, Ltd., metal casements; Williams, Smith & Evans, roofing contractors; C. Harvey & Co., electric lighting and fittings, door furniture, etc.; J. Burley & Sons, garden work; Nicholls & Clarke, sanitary fittings.

Mr. E. Berry Webber, A.R.I.B.A., is the architect.

House at Pachesham Park, Leatherhead.

This house was completed recently. It is built with stock bricks with "Atlas White" rendering. Roman tiles, by Messrs. Hall and Co., of Croydon, have been used on the roof. Steel casements with shutters in two shades of grey give added decorative value. Internally, the walls are of rough plaster, scored in patterns. The builder was Mr. R. L. Coombs, and Messrs. Riley and Glanfield, FF.R.I.B.A., were the architects.

"Great Hall," Aldsworth, Hants.

Our illustrations show portions of the extensive alterations and additions made in 1929 to the original old farmhouse. The walls are of monolithic concrete and the roof of the great hall has been built of ships' timber covered with the red hand-made sand-faced tiles of the Binfield Company. A system of panel heating was installed by Messrs. Richard Crittall and Co., Ltd. Messrs. Hamptons were responsible for the furnishings, which included some old oak panelling. The casements were by the Crittall Manufacturing Co., Ltd. The builder was Mr. G. Smith, of Emsworth, and Messrs. Riley and Glanfield, FF.R.I.B.A., were the architects.

Design for a Village Hall.

This design, by Mr. G. Bellis, was submitted in last year's National Eisteddfod of Wales competition. The winning design, by Messrs. Clare and Hartland, was illustrated in our issue for February 15, 1929.

Conway Hall, Red Lion-square, W.C.

Conway Hall occupies a somewhat awkward site at the north-east corner of Red Lion-square with a northward extension to Theobald's-road. It has been designed to meet the needs of the South Place Ethical Society, which comprises Sunday services, weekday lectures, concerts, social activities and a library. As the hall has a music and dancing licence it had to comply with the appropriate regulations of such buildings. The main elevation is faced with silver-grey Ruabon bricks with a plinth of concrete with exposed aggregate, and Portland stone stringcourse, coping and vases. These six vases are relics of the Union Bank recently demolished in the city. Their use enabled the architect to unify the elevation in the narrow Lambs Conduit-passage with the higher elevation towards the Square without great expense or interference with ancient lights. The entrance and staircase halls are faced with marble terrazzo and floored with Florida tiles laid with wide joints. The large hall seats 325 persons on the ground floor and 175 in the balcony. The walls are lined with laminated oak 1½ in. thick and the concrete front of the balcony with oak plywood. Above the oak, acoustic plaster has been used in places that would otherwise have produced echoes. The sections of the hall were arranged in consultation with Mr Hope Bagenal, F.R.I.B.A. The modelled panels forming the capitals of the proscenium piers are by Mrs. Violet Stuttig and represent "The Mirror of Truth" and "The Torch of Knowledge." Mr. J. Roger Preston was the heating consultant. The small hall seats 100 persons.

The contractors were Messrs. John Greenwood, Ltd., and the contract price £28,485. Mr. D. Kennedy acted as clerk of works and Mr. Gilbey as foreman. The quantity surveyor was Mr. T. Moody; sub-contractors: B. Goodman and Co., excavation; Ragusa Asphalte Paving Co., Ltd., asphalt; Edwards, Ruabon, silver-grey facings and Fletton bricks; Chambers and Norris, artificial stone; Cooper, Wettern and Co., granite; Redpath, Brown and Co., structural steel; Kleine Flooring Co., fireproof construction; J. A. King and Co., lay-lights; Haywards, Ltd., and Luxfer, Ltd., patent glazing; Zeta Wood Flooring Co., wood-block flooring; Carter and Co., Ltd., floor tiles and stair treads, Carterrazzo walls and staircase; H. and H. Davies and Co., central heating and ventilation; Gas, Light and Coke Co., grates and gasfitting; National Radiator Co., boilers; Tyler and Freeman, electric wiring, bells and telephones; Dernier and Hamlyn, and Gillham and Jones, electric light fixtures; J. Evans and Co., plumbing; A. Emanuel and Sons, Ltd., sanitary fittings; Robert Adams, door furniture; Jas. Gibbons, window and door furniture, metalwork, casements and cloakroom fittings; Bostwick Gate Co., folding gates; Merryweather and Sons, fire appliances; Light Steel Co., iron staircases and metalwork; May Construction Co., acoustic plaster; Geo. Rome and Co., plaster; Wm. Hitchins and Co., doors; Jn. Greenwood, oak linings to walls, doors, and oak work in library; Martin van Stratten, tiling; J Avery and Co., textiles; North of England School Furnishing Co., seats in large hall; Tan-Sad Co., seats in small hall; Adrian Stokes and Co., signs.

Mr. F. Herbert Mansford, L.R.I.B.A., is the architect.

New Catholic Schools, Ramsgate.

Originally all the boys and girls (including infants) were taught in the Artillery-road school, which had become too small owing to the ever-increasing number of scholars. The managers therefore decided to erect a new building to accommodate the older boys and girls and use the old school for children up to eight years of age. The new school, which is now in use, stands on a site off Dane Park-road, and is planned on the open-verandah system, to accommodate 270 boys and girls. The building is constructed of local brick facings with cast-stone dressings, and the roofs are covered with slates.

The architect is Mr. W. Everard Healey, F.R.I.B.A.

Brighton Crematorium.

The Brighton Crematorium, which has been erected at the rear of the old chapels in the Borough Cemetery by the County Borough of Brighton, is, we are informed, the first crematorium in this country with two catafalques—one for the Church of England, the other for Nonconformists. The furnace room is connected with the chapels by means of a corridor. It is provided with one of Gibbon Brothers' coke-fired type of furnaces and the foundations and flues are constructed for a second furnace to be added. The building has been erected from the design and under the superintendence of Mr. Albert C. Freeman. The building contractors were Messrs. F. T. Wilson and Sons, Brighton; stonework was supplied by Messrs. Stuarts' Granolithic Co.; roof tiling was executed by Roberts, Adlard and Co., Ltd.; and flat roofs are covered with "Vulcanite" roofing. The bronze gates to the catafalques were supplied by Messrs. Luxfer, Ltd. The cost of the building and engineering works was about £4,500.

"Harlingen," Hadley, Herts.

This house was erected from the designs of Mr. W. Harold Jones, A.R.I.B.A., for Mr. W. van Oppen, by Messrs. C. Cullen and Sons, of 189, High-street, Barnet, Herts.

House at Summersdale, near Chichester.

This is the work of Messrs. Gordon Griffiths and E. Brian Tyler, A.R.I.B.A.

THE SURVEYORS' INSTITUTION

A PAPER on "Town Planning of Built-up Areas" was read by Mr. W. Townend, F.S.I., before the Surveyors' Institution on Monday. The Town Planning Act at present authorised the preparation of town planning schemes only for land in course of development or likely to be developed for building purposes except that (*a*) buildings which were essentially part of an otherwise undeveloped area might be included in schemes for those areas, and (*b*) special schemes might be prepared (as in the case of Oxford) with a view to preserving the existing character and features of localities of special architectural, historic or artistic interest. That, very shortly, set out the position as regards town planning (except for the alteration in the statistics relating to schemes) which existed in 1926 when the Newcastle Corporation went to Parliament with the Newcastle Corporation Bill of that year.

He hoped, said the lecturer, that he might speak for the majority of the members of the Surveyors' Institution when he said that the Institution was in favour of town planning, though some members did at times express themselves strongly on the delays which took place owing to the somewhat leisurely procedure by which schemes passed through their various stages and ultimately became operative. He hoped that he might also represent the opinion of members when he said that he thought they should welcome any well considered and framed Act of Parliament which would enable municipal authorities to correct on built-up areas the errors of those who had laid out estates in the past; and that if a code of laws could be framed which would enable municipal authorities to replan their areas to the advantage of the communities living therein without inflicting undue hardship on individual owners, the Institution should do all in its power to help forward work which must be to the advantage of the country as a whole. His experience, however, in Newcastle had caused him to have grave doubts as to the possibility of adapting a code of legislation, which was specifically designed to deal with the problems arising out of the development of open land on the fringe of built-up areas, to what was really not town planning but the replanning of the towns of this country. In this connection the following observations of the Ministry of Health on the Newcastle Bill when it was first presented in Parliament (at which time Part II. was Part VII.) were interesting :—

"On the proposals of Part VII. of the Bill generally, it appears to the Ministry that to provide for necessary improvements in the developed parts of towns on the lines proposed by the Corporation promises many advantages. The usual practice at present is to submit proposals for individual improvements. The essence of town planning is to consider the problem as a whole, and, after consulting all interests, to submit a concerted plan, to be carried out as means and opportunity allow.

"Such a course should promote economy and efficiency, and, therefore, the Ministry would like to see the proposal tried.

"As regards private interests, the Town Planning Acts contain provisions for compensation when an owner is injuriously affected. Furthermore, the Ministry emphasise the importance of fully consulting private interests in preparing a scheme. Ample opportunities are given to interested persons to put forward their views, including public inquiries in the locality."

It would be observed, therefore, that the Ministry stated that they would like to see a proposal tried.

The next stage of Newcastle came in October, 1927, when the City Council approved a report of the Town Improvement Committee as to the preparation of a town planning scheme for the central part of the city, and a resolution to that effect was thereupon passed by the Council. In December the Council confirmed a report of the same committee recommending them to approve the line of a proposed new street which was intended to be a new arterial road running through that part of the city which it was intended to replan. The proposals of the Corporation were such as might have been welcomed by owners of unbuilt-upon land, but when applied to a built-up area in the centre of a large city were bound to cause considerable apprehension in the minds of owners whose properties were included within the lines of streets on the town planning map, and which, therefore, could not be built upon or altered except with the consent of the City Council, unless the owner was prepared to run the risk of carrying out building operations for which, in the event of the Corporation deciding to acquire his property, he would be unable to recover compensation. During 1928 a number of owners on the line of this new street, which had been approved by the City Council, wished either to rebuild or develop their properties, and the Corporation, in view of their avowed intention to proceed under town planning powers, refused to sanction the erection of new buildings on the line of the street. Four owners appealed to the Ministry of Health against decisions of the Corporation, and in October an inquiry was held by one of the inspectors appointed by the Ministry. The parties were represented by counsel, and the inspector suggested that it would be prudent to adjourn the inquiry to enable the Corporation to purchase the properties which their owners wished to develop. When, however, the adjourned inquiry was heard in November, it was found that in one case only had the Corporation come to terms with the owner, so that the Minister was obliged to decide the appeals. On December 11, 1928, the Minister of Health communicated his decision to the town clerk, stating that he did not consider that he could properly acquiesce in unduly postponing consent to building development in pursuance of the powers of the City Council under their Town Planning Act, and he gave the Corporation a month in which to decide to purchase by arbitration in the event of their being unable to buy by agreement; should they fail to do this, he would be constrained to grant the request of the petitioners and allow them to proceed with their building schemes. At the end of the month the City Council, realising that these four cases were only the forerunners of numerous others which would occur in the future, decided to abandon the line of the proposed street, and the owners were left in the unfortunate position of having had their development hung up, and having incurred heavy expenses in the form of the fees of counsel, solicitors, and surveyors, which they have been unable to recover from the Corporation.

Dealing with the effect of the application of the Newcastle Act, which had been used as a model by other authorities, to built-up areas, the lecturer said that Section 6 modified the restrictions contained in Section 92 of the Lands Clauses (Consolidation) Act, 1845, and paragraph 2 of Part II. of the Third Schedule to the Town Planning Act of 1925, as applied by Section 8 of the latter Act on the compulsory acquisition of curtilages of houses or parts of property, or of land belonging to a local authority or statutory company. Acquisition of property of the kind mentioned might obviously be desirable in connection with street or other improvements for which provision was made in schemes. The provision enabling parts of property to be taken was modelled on similar provisions in many local Acts relating to street improvements, and the provision relating to the compulsory acquisition of land belonging to a local authority or statutory company was similar in effect to Section 33 (13) of the Public Health Act, 1925. It would also be noticed that the arbitrator's discretion was apparently fettered by this section (Section 6) as he had to determine, in addition to the other questions required to be determined by him, whether the said specific portion of the property could be severed from the remainder without material detriment thereto, and whether any and what other portion less than the whole, but not exceeding the portion for which the Corporation had compulsory powers of purchase could be so severed.

Regulations provided for full public notice by advertisement or otherwise of all stages in the preparation of a scheme, and for individual notice to owners when the draft scheme was prepared by the local authority when it was deposited as proposed to be approved by the Ministry, and when it was finally approved. It had often been represented to the Ministry that the work of compiling lists of owners for this purpose and keeping them up to date (often over a considerable period) was liable to be heavy and costly even in undeveloped areas if the land was held in small ownerships. It might become almost prohibitive in areas closely developed with buildings, and the Ministry had in fact received representations to this effect, *e.g.*, from the Town Council of Chester, who had been considering the preparation of a scheme for their town under the powers relating to localities of special architectural and historic interest, but hesitated to undertake one on this particular account. If this proposal was passed, the Corporation would be still under an obligation (under the Town Planning Regulations) to give full public advertisement of each stage of its procedure —when it passed a resolution to prepare a scheme for an area; when it adopted its preliminary scheme; when the draft scheme had been prepared and deposited; and after it had been provisionally approved by the Ministry (when there was still an opportunity to make objections). In addition, by just registering his name and address, any affected owner could receive individual notices at all stages, as well as the public notices. It appears that these provisions would secure quite adequate safeguards of publicity.

There were many other provisions in the Model Clauses which were quite inapplicable to built-up areas. It was easy to zone vacant land, and to allocate shops to one area, works to another, and limitations of the number of houses to be erected per acre to others; but when one dealt with a built-up area and found that long-sighted persons had purchased property in the expectation that houses, for instance, would ultimately become suitable for conversion into shops, and advances had possibly been made for mortgage purposes on valuations based on this assumption, great hardship would be inflicted on owners if provisions relating to zoning were applied in such instances and they were unable to recover compensation from the local authority for the loss of prospective profits which they had sustained. Another matter which demanded careful consideration was that under the Town Planning Act as it stood a compensation claim was allowed only in respect of property injuriously affected. This, of course, was quite proper when dealing with open land; but when we came to deal with business premises in built-up areas, it was obvious that provision should be made for a claim for compensation for loss or disturbance of business. It was the owner of the property whose property was injuriously affected who had a claim under the town planning provisions, and there did not appear to be any provision by which the occupier could succeed in a claim for compensation under this Act as his property was not affected, and under the Town Planning Act compensation was specifically excluded in certain cases :—First, if one prescribed the space to be left about buildings; secondly, if one limited the number of buildings to be erected on a particular area, *e.g.*, 4, 8 or 12 houses to the acre; third, there was no compensation in respect of the prescription of the height and character of buildings or the space about buildings.

Therefore, here again, it was quite obvious that the provisions of the Town Planning Act were not suitable for the making of a scheme for a built-up area.

LIABILITIES ATTACHING TO DEFECTIVE PLANT

A RECENT decision of the House of Lords in the case Oliver v. Saddler & Co. (1929, A.C. 584), it appears to us, may have some bearing on some of those cases common in the building trade where employees in different employ are engaged on a building and the use of plant is common to both, but supplied by one of the parties. The facts of the case are as follows :—A ship was discharging cargo in the Port of Leith, and the operation involved the employment of two distinct groups of men : (1) the stevedores who were employed by the shipowner; and (2) the porters who were employed by the consignees of the cargo. In that port the shipowners give delivery to steelyards on the deck of the vessel, and the porters take delivery there and land the cargo on the quay. The cargo was grain, and the method of discharge was that the stevedores grouped the bags into sets in the hold, each set consisting of five or six bags, and passed round the sets a sling; the sling was then attached to the ship's derrick and the sets were hauled up to the steelyard on the deck, where the stevedores' function was at an end.

The porters then detached the derrick hook from the set, and after the weight of the load has been recorded by official weighmen, the porters then attach the sling to a shore crane, which raises the load to the quay. That was the method being adopted on the date in question, but sometimes, when the ship's deck is higher than the quay, the crane is not used, but the sets taken apart and the bags conveyed down gangways to the quay; but the more usual method is that described above, and it is important to note that then the same sling is attached to the load for the whole operation from hold to quay.

Moreover, the slings were supplied by the stevedores, who have a rigger specially charged with the duty of preparing the slings and inspecting them when in use, and seeing that they are not used to excess, and, in addition to this, the hatchwayman has the duty of examining and, if necessary, rejecting a defective sling on its return journey, and a similar duty is cast upon the men in the hold. It is obvious that the operation was dangerous to their own men in the hold and on the deck.

On December 10, 1925, a man employed as a porter was seriously injured by the breaking of a defective sling, and he died a few days later, and in this action the widow and children were suing the firm of stevedores for damages in respect of his death, and this raised the question whether the stevedores owed any duty to the deceased. The House of Lords, per Lord Buckmaster, said they found little assistance from the general propositions laid down in such cases as Heaven v. Pender (11, Q.B.D. 503), as the duty alleged here arose out of special circumstances that had nowhere been the subject of decision, and on these circumstances they held that the stevedore firm owed a duty to the porters to take reasonable care that the sling was in fit condition : the stevedores intended for their own business convenience, and in order to secure despatch, that the sling should be used throughout the whole operation, and they knew that the porters would have no reasonable opportunity of examining the slings and must rely upon the stevedores for the examination; the stevedores were under a duty to their own men and to everyone on deck whilst the load was attached to the ship's derrick, and that duty continued as regards the men engaged in the second part of the operation.

Lord Dunedin, whilst concurring, pointed out that the case must be regarded as peculiarly dependent on its own circumstances, and based his judgment on a rather narrower ground, that the stevedores knew that the slings were to be used in a dangerous operation, and they also knew that they were the only persons who could ensure reliability by inspection, and in these circumstances they had shown negligence in the duty imposed upon them, that of inspection. This distinction between the judgments of the majority and that of Lord Dunedin becomes more apparent when we consider the reasons which caused the House to distinguish this case from the nearest authority upon the point, Caledonian Railway v. Mulholland (1898, A.C. 216). In that case coal was to be conveyed from a colliery to Glasgow. The system of the Caledonian Railway, on which the transit began, ended at Dumfries, but by an arrangement between the Gas Commissioners and the Glasgow and South-Western Railway the haulage was to be continued in the same trucks a distance of about a quarter of a mile by the latter company. During this part of the operation an employee of the Glasgow Railway was killed, owing to one of the brakes being defective, and his dependents brought an action against both companies. It was held that the Caledonian Company were under no liability, as that company had fulfilled its obligations when the wagons were handed over at Dumfries. The other members of the House, in the case under consideration, distinguished this case on the ground that the examination of the wagons was equally open to either party, and there was no ground upon which the Glasgow Company could rely upon examination by the Caledonian Company as regards the second stage, which, it appears, involved special risks, for there was a dip and a sharp ascent up to the gate of the gasworks, which it was the practice to let the wagon negotiate by its own weight; but Lord Dunedin distinguished this case on the risk of the operation connected with the slings, an element that was not present so far as the Caledonian Railway was concerned, for there was no obvious danger in allowing the wagons to be taken from their own line on to another, and the Company had no knowledge that an operation involving any danger with reliance on the brake was going to be performed. It will be observed that the risk, if any, occurred in this case in the second stage, not from the beginning, as in the slings case.

It must be noted that in Saddler's case the operation was not a joint operation, in which case, as Lord Dunedin observed, there would have been no difficulty, for the contract of the person sought to be made liable had determined before the accident happened; moreover, the second operation was liable to variation according to the height of the vessel above the quay. It was a separate undertaking between two parties, and Lord Buckmaster put the matter thus : "It is not the fact of one operation effected in two stages by two persons with the common use of the property of one of them that creates liability, it is the fact that for the safe conduct of that operation something must be done, and that in the circumstances of this case the performance of that act could only be reasonably carried out by one party to the work." The words "safe conduct" involve the element of danger, and similarly we find Lord Atkin speaking of the knowledge of the stevedores that the slings were to be used in conditions of danger, and this leads us to think that there may be no real divergence in the views expressed by Lords Buckmaster and Atkin and those expressed by Lord Dunedin; that is to say, the duty depends upon the danger of the operation and the opportunity afforded to the respective parties of providing against that danger. But Lord Dunedin at any rate thought that the judgments delivered by the other members of the House were capable of wider interpretation, for he is reported as saying : "I do wish emphatically to express the very narrow limits within which my concurrence is confined, for I cannot help feeling that this decision might be drawn into a precedent for what it does not warrant."

There is considerable difficulty in reconciling all the decisions which turn upon liability where there is no direct privity between the person injured and the person whose negligence is said to have caused the injury. Many of them will be found to depend upon licence or invitation. In Heaven v. Pender (11 Q.B.D. 503), a dock company under contract with the shipowner had erected a staging round a vessel, and a painter employed by the shipowner has sustained injury owing to a defect in the staging. The majority of the Court of Appeal held that as the plaintiff was engaged on work in which the defendant, as dock owner, was interested, the defendant was under obligation to him to see that the staging at the time it was supplied was fit to be used. Here the element of licence or invitation is present. Lord Esher went further than the rest of the Court, holding that whenever one person is by circumstances placed in such a position to another that everyone of ordinary sense would at once recognise that if he did not use ordinary care and skill in his own conduct with regard to those circumstances he would cause danger of injury to the person or property of the other, a duty arises to use ordinary care and skill, but we do not think that this dictum, as broadly stated, has generally been followed.

The case of Elliott v. C. P. Roberts & Co. (1916, 2 K.B. 518; *The Builder*, November 19, 1915; and on appeal June 2, 1916) is an important decision on the question of invitation. The defendants, a firm of builders, had contracted with the London County Council for the erection of some schools, and it was a term of the contract that facilities should be afforded for other tradesmen employed by the Council to come upon the premises. One of such tradesmen was injured by crossing an unfenced gangway, and the Court of Appeal, reversing the decision in the Court below, intimated that the man was an invitee, in which case, although there was no hidden danger, the duty of inspection and adjustment of the gangway would arise as between the builders and the plaintiff, and a new trial was ordered. Our space does not permit us to enter into detail into such questions in this article, but an important element in transactions where more than two parties are involved is who has control of the operation, as we showed in our first article on Ex-Contractual Liabilities.

The present case is, as the House of Lords pointed out, most unusual in its circumstances, and the decision amounts to this : that where an operation is undertaken by two parties under separate contracts in two stages, but the use of plant is contemplated throughout the whole operation, the person supplying that plant will be liable for defects throughout the operation unless there is opportunity between the two stages for the second party to make an examination of the plant for himself, especially if the operation in which the plant is used involves danger (see per Lord Dunedin), and possibly without this special element of danger if the plant is so used with the knowledge and assent of those supplying it and in their own interests; for instance, so as to secure greater despatch.

A Flaxman Medallion of Dr. Johnson.

A portrait medallion of Dr. Samuel Johnson, executed from the original model (dated 1784) by John Flaxman, has been presented as a New Year's gift to the trustees of Dr. Johnson's House, in Gough-square, Fleet-street. The medallion, which is probably the best portrait in existence of the great eighteenth-century literary figure, is the gift of the pottery firm founded by Josiah Wedgwood, whose bicentenary will be commemorated in May.

BOOK REVIEWS

How to Appeal against your Rates in the Metropolis, with Forms and full Instructions. By ANDREW DOUGLAS LAWRIE, M.A., of the South-Eastern Circuit, Barrister-at-Law. Sixth Edition Revised by GEORGE FREDERICK EMERY, LL.M., of the South-Eastern Circuit, Barrister-at-Law. London: Effingham Wilson, 16, Copthall-avenue. 5s.

How to Appeal against your Rates Outside the Metropolis, with Forms and full Instructions, being a collection of Statutory Provisions and decided cases relating to the Assessment of Property and Appeals therefrom. Seventh Edition. By the same Authors. London: Effingham Wilson, 16, Copthall-avenue. 6s.

The first of these little volumes, "How to Appeal in the Metropolis," has a long history behind it, as the first edition appeared in 1887. The same information is not given as regards the second volume, but as it is the seventh edition, presumably its history is even longer, as we see the last edition was published in 1900. We may say at once that we think the authors have been well advised to publish the two volumes separately, as it enables those requiring information relating to their particular locality to obtain it at a lower price than would be the case had the two volumes been combined.

As regards the first volume, as the author points out in his preface, with the exception of the Rating Acts, 1925 and 1928, the Rating and Valuation Apportionment Act, 1928, and the Local Government Act, 1929, there has been little change since the last edition appeared in 1922. With reference to the de-rating provisions contained in the last-named Act, the author does not deal with them in the text, as he considers that until there are decisions upon them the provisions speak for themselves, and the relevant portions of the statutes are set out in the appendix. Moreover, as the author points out, there is little agricultural land in the County of London. Thus, as is stated in the preface, as the machinery for rating appeals with which this volume mainly deals remains unchanged in the Metropolis, the text of this volume is practically unaltered, and as it has already proved its own worth, it requires no recommendation at our hands.

The second volume, which deals with the Rating Appeals outside the Metropolitan area, has had to be re-written owing to the legislative changes that have taken place since the last edition appeared in 1900, and the work appears to have been brought thoroughly up to date with reference to the recent statutes, including that relating to de-rating, and the material sections of the statutes are given in the second part of the work.

The author in his preface points out that the position with regard to appeals is now simple, and strictly speaking there is not any appeal against a rate, appeals being limited to matters relating to the valuation lists, and then he points out that the only appeal against an actual rate appears to be limited to *certiorari* in the case of a rate that is *ultra vires*. The proceedings by *certiorari* are dealt with on page 16, and it is shown that a person aggrieved by a decision of the assessment committee can appeal to Quarter Sessions (page 12), and that the decision of the Court of Quarter Sessions can be questioned by a writ of *certiorari*, and that the basis of an application for a writ of *certiorari* is that the decision "is bad for want of jurisdiction—as, for instance, interest in a member." We refer to these passages only because we venture to think that in consequence of a recent decision they require to be supplemented.

At page 8, when dealing with assessment committees, the author states: "The Assessment Committee are not in any sense a Court or Tribunal exercising judicial function." Were that the case a writ of prohibition or a writ of *certiorari* would not lie in respect of their proceedings, but in the recent case, Rex *v.* North Worcestershire Assessment Committee *ex parte* Hadley (*Weekly Notes*, May 4, 1929; *The Builder*, April 17, 1929), a Divisional Court considered the statement which the author has adopted that an assessment committee is in no sense a court or tribunal exercising judicial functions, which was laid down in Reg. *v.* St. Mary Abbotts' assessment committee (1891, 1 Q.B. 378), and held that whenever the legislature entrusts to any body of persons the power of imposing an obligation upon individuals the courts ought to exercise as widely as they can the power of controlling those bodies of persons if they attempt to exercise powers beyond those given to them by Act of Parliament, and that an assessment committee was such a body, and therefore in a proper case a writ of prohibition would lie. We venture to draw the author's attention to this decision because it appears to show that where the assessment committee exceeds its jurisdiction or is improperly constituted a writ of prohibition will lie to restrain them from acting further. In the case Rex *v.* North Worcestershire Assessment Committee the owner and occupier of a dwelling-house was objecting to the assessment made upon his house, but on discovering that two members of the rating and valuation committee which had made the assessment were also members of the assessment committee, he applied for a writ of prohibition to prohibit the assessment committee from hearing his objection. The Court held that the writ would lie, but in the particular circumstances of the case the rule was discharged.

In this digression we must not be taken as indicating any criticism of this work. Both volumes appear to us excellent little handbooks on the subjects they deal with, and should meet with the appreciation shown to former editions. There is a table of cases to both volumes, but only an index to that dealing with appeals outside the Metropolis, and we think an index to the other volume would be appreciated in the next edition; and as these volumes are intended for use by laymen, may we venture to suggest that it would even add to their value if, when statutes are cited, the year of the statutes might be added, as laymen fail to identify them by the reference to the reign in which they were passed and the chapter.

The Workmen's Compensation Acts, 1925 and 1926, with Notes, Rules, Orders and Regulations by W. Addington Willis, C.B.E., LL.B., of the Inner Temple, Barrister-at-Law; Deputy Crown Umpire of Unemployment Insurance. Twenty-sixth edition of "Willis's Workmen's Compensation Acts." London: Butterworth and Co., 1929. 15s. net.

The last edition of this work appeared in August, 1927, and this twenty-sixth edition in August, 1929; a break of nearly two years in the appearance of this text book being unusual for it has become almost an annual. This work has a remarkable record as the first edition under another title appeared with the introduction of Workmen's Compensation in 1897, and in the 32 years that have since elapsed it has run through 26 editions, in some of the years two and even three editions being called for. In this edition the author states that the decisions reported down to May 4, 1929, have been incorporated, and in response to a request by Scottish practitioners he has printed in the appendix the Act of Sederunt, which will be found useful as it is often referred to in appeals to the House of Lords.

It is unnecessary to say that we find the effect of such recent decisions as Anchor Donaldson *v.* Crossland, a case we have recently referred to as altering the law on section 12, which relates to ending or diminishing weekly payments, correctly and concisely set out by the author although at the time of publication this case had not been reported in full in the Law Reports, but a statement made on page 209 in the note on section 9, sub-section (4), that the principle laid down in Cardiff Corporation *v.* Hall (1911, 1 K.B. 1009; *The Builder*, June 2, 1911) has been held in Bevan *v.* Nixon's Navigation (1929, A.C. 44; *The Builder*, August 10, 1928) as applying to the section so that "work of a certain kind" does not include the man's old occupation, requires amendment now in consequence of the decision of the House of Lords in Tannoch *v.* Brownieside Coal Company Ltd. (Weekly Notes, July 20, 1929), a case of course decided since the publication of this edition. A good deal of attention is being called at the moment to schemes for compensation in respect of silicosis, and the author in his preface speaks of four such schemes, two of which leave the determination of questions, including claims to compensation, to joint committees with the right of the aggrieved person to apply to the Secretary of State to give rulings on any determination alleged to be based on a misinterpretation of the provisions of the schemes, whilst two other schemes require such questions and claims to be determined in accordance with the provisions of the Act. Only the latter are set out in Appendix L, but the other schemes are summarised at pages 428 and 429. In a work so comprehensive as this, forming a complete guide to the Acts, we regret that all the schemes are not given *in extenso* in the appendix. Questions as to insurance against the risks incurred under such schemes have recently been raised; these questions lie outside the scope of this work as they must depend upon the terms of the several policies, but perhaps we may say here that this seems a question deserving the attention of the legislature. The Act in certain sections, as, for example, in those relating to bankruptcy, recognises the importance to the workman of security, and section 45 in relation to industrial diseases in general, contains some provisions as to mutual insurance companies or societies, and it appears the matter could easily be dealt with by some amplification of the terms of that section. We, however, apologise to the author for interpolating this question here.

This volume contains 481 pages of closely written text, excluding the text of the Act, the rules, orders and appendices, and furnishes evidence of the development in 32 years of a new and highly technical branch of statute law, and practitioners and all persons concerned would find themselves in great difficulties were it not for such standard text books as this.

Readers of our pages will be aware that the treatment of the subject does not admit of great simplification if any useful purpose is to be accomplished, and that however ably the subject is presented it must involve close study to come to a conclusion on many points. The author follows the lines that he has with good reason found to find favour, and this text book has received recognition in the Courts. It is well brought up-to-date, and we think it is a tribute to its accuracy, considering the bulk of matter, that we have only been able in our survey of this edition to discover one trifling omission—a case, Davidson *v.* Holmside and South Moor Collieries, referred to in the text at page 33 we think has been omitted in the Table of Cases.

A Concise Handbook of Provincial Government Law, for the use of Ratepayers, Councillors and Officials. By C. J. F. ATKINSON, LL.B. (Lond.). Second edition revised by R. BORREGAARD, M.A. (Oxon.), Barrister-at-Law. London: Effingham Wilson, 16, Copthall-avenue. 7s. 6d.

The first edition of this work appeared in 1913, and as is pointed out in the preface

to this edition, considerable changes have taken place since that date, not confined only to the substance of the law relating to local government but of an administrative character. A revised edition, therefore, appears clearly to be called for, and so far as we have examined the work this task appears to have been carefully and thoroughly carried out. There is an enormous amount of information contained in a clear form in the 256 pages of text, and there is an index, but as cases are referred to in the text we think in a future edition a table of cases would perhaps be welcomed. This little volume appears precisely to correspond to its title, as it is a "concise handbook" to the many subjects that are now involved in provincial local government, clearly expressed and presented in a readable form.

De-rating is not mentioned in the index, but will be found under the heading Valuation, and here we find a slight error in the references to the Local Government Act, 1929, as on page 7 agricultural land is said to be dealt with by section 65 of the Act, whereas the section is 67; and on page 8 the reference to premises used for industrial purposes and transport is given as section 66 whereas it should be section 68. On page 149 we are not quite certain that the statement that, when a private street is being made up by the local authority under section 150 of the Public Health Act, 1875, on receipt of the apportionment the owner can raise the objection that the work was insufficient or unreasonable or the expense excessive, is accurate, as there is some doubt about that point, and these objections were introduced in section 7 of the Private Street Works Act, 1892, apparently to remove these doubts in the improved procedure provided by that Act.

We, however, only draw attention to these trifling points for consideration in the next edition, which we should imagine is likely to be called for at no long interval, for this little work forms a comprehensive guide to a most voluminous subject, and is presented at a very small cost, and should prove highly useful to those it is intended to assist —ratepayers, councillors, and officials.

The Water Supply of Towns and the Construction of Waterworks. A practical treatise for the use of Engineers and Students of Engineering. By W. K. BURTON, Assoc.M.Inst.C.E.; late Professor of Sanitary Engineering in the Imperial University, Tokyo, Japan; Sanitary Engineer to the Home Department, Japan. Fourth Edition. In two volumes. Vol. 1: Collection and Purification Works. Vol. 2: Works for Distribution, by J. E. DUMBLETON, Assoc.M.Inst.C.E., author of "Wells and Boreholes for Water Supply." (London: Crosby Lockwood & Son, 7, Stationers' Hall-court, Ludgate-hill.) Price 25s. each volume.

It is impossible to conceive of a more important branch of civil engineering than that of water supply in all its details. The fourth edition of Mr. Burton's original work has been ably and expertly produced by Mr. Dumbleton. The work has been aptly divided into what one cannot help regarding as a natural division, viz.:—Volume 1: Collection and Purification; Volume 2: Distribution. As the authors have stated in the prefaces to the different editions, the information supplied should be extremely valuable, in the first place to students who are proposing to make water engineering the chief plank in their life's platform, and in the second place to those already engaged, and qualified to engage, in the superintendence of the people's water supply in whatever part of the world they may be located. It should find premier place in their library as a book of reference. Though these two branches of people are those primarily catered for, there is no reason why the layman who is blessed at least with a smattering of knowledge of the elementary sciences such as mechanics, physics, chemistry and biology should not read these volumes with both interest and profit.

Again, even though many references are made to particular conditions of water supply and distribution, with accompanying details, mostly, the information supplied is of a thoroughly general character. This must, of course, be so, for does not each district and town present its own problems in such things as the supply and kind of water, and the methods of collection and distribution?

To the average reader who, in the whirl and rush of life to-day, finds little time for reading there is much interesting matter, particularly in the chapters on Flow of Water, Distribution, and Prevention of Waste, in Volume 2, as well as Appendix 1, by Professor John Milne, on "The probable effects of earthquakes on waterworks," and Appendix 2, by Johm de Rijke, C.E., on "Sand-dunes and dune-sand as a source of water supply," with particular reference to Amsterdam. In connection with the information in the latter Appendix, it is perhaps of interest to state that in some of our island colonies where there are most beautiful sand-dunes the water obtained from wells is brackish and unfit for drinking. The authorities have therefore to make and keep in condition large cement-surfaced catchment areas from which the rain-water can flow into storage tanks.

In conclusion, one is compelled to extol the illustrations and diagrams, which assist materially in making clear the meaning of the text. Finally, as every governing authority is at least theoretically responsible for the supply of good, pure water to its people, it should insist that all those who have to carry out their wishes in this respect should be familiar with the information given in these two volumes.

Some Notes on Taking Off Quantities. By ARTHUR J. WILLIS, F.S.I. (9, Queen Anne's-gate, S.W.1.) Price 3s. 6d. net.

This little book makes its appeal chiefly to the young student in quantity surveying, and although such a practical subject as this cannot be learned entirely from books, the author has certainly achieved the object of setting out in a concise form many of the questions which arise during the process of "taking off," and his reasons for the opinions offered in their solution should be extremely useful to the student when some day he is called upon to settle similar queries for himself. Like its sister volume, "Working Up a Bill of Quantities," by the same author, its size and adaptability to the coat-pocket make it attractive to the junior for reading while travelling to and from the office, or at other odd moments. It does not claim to be a complete and elaborate text-book, but it clearly shows that the task of the taker-off is a very important one, and we agree that the student having once decided on his method of attack, the motto of "system and accuracy" must be strictly adhered to if he would avoid the maze of difficulties and trouble that would otherwise inevitably result. Chapter II ("Organisation and Procedure") gives useful advice on these matters and offers valuable suggestions on the division of work, drawings, specifications, P.C. sums, contingencies, etc., and the care which must be taken in the descriptions and references in order that the dimensions can be easily understood by others, possibly years later.

The notes given on the various trades in Chapter IV are of special interest, for the points mentioned therein are those most likely to arise in practice, and on which the experience and advice of the author should be welcomed, in that they have been tendered on a consideration of the Standard Method of Measurement. Not only the student but the more experienced practitioner will find much useful information in the last two chapters. The settlement of the variation account on a building contract is an important function of the quantity surveyor and calls for impartiality, careful judgment, a complete knowledge of pricing, and the ability to make accurate decisions on the cash value of any difficulty which the contractor may raise as a claim for an "extra." The scope of the surveyor's authority is also clearly set forth when dealing with authorised variations under the clauses of the R.I.B.A. Conditions of Contract (1909), both when bills of quantities form part of the contract and when they do not.

Elementary Structural Problems in Steel and Timber. By C. R. YOUNG, B.A.Sc., C.E. (New York: John Wiley & Sons, Inc. London: Chapman & Hall, Ltd.) 1929. 17s. 6d. net.

The author (who is Professor of Structural Engineering in the University of Toronto) naturally divides his subject into sections:—(1) Steel Structures, and (2) Timber Structures; and has written this book as a supplement to, and not "to replace any of the excellent treatises" on his subject. It is devoted in large part to the problem side; thus, the great majority of sections into which each chapter is divided are a solution of some definitely stated problem, so that the private student will doubtless find very many hints in his reading. Frequently authors write in a very concise style, so that without tutorial assistance the average student finds much difficulty in solving problems, as so much lies beneath the text that some experience and ingenuity are required to apply the principles stated to a particular problem. To meet this want of the private student, books called cribs, keys, etc., are frequently available, but these differ somewhat from the book before us, because it is not related to any other book but is entirely self-contained.

The value of such books depends upon: (1) the character of the solutions, and (2) as much upon the method of the user. These are probably truisms, but none the less important to bear in mind when appraising the worth of such help to proficiency. In a drawing office where much work is done of a repetitive character, much time may be saved, both in the work of deducing the scantlings, as well as in the business of checking the accuracy of the calculations made, if a standard form be drawn up for general use, and in which, after entering the data, the work is arranged in a series of steps systematically leading to the required results. Further, if the work is thoughtfully laid down, practically all the calculations may be made by means of a slide-rule. Such forms when used are commercially valuable, but as they frequently are based upon special assumptions they are very confusing to a student.

The ordinary student usually wastes much time over his work before he realises that the simple act of reading through a statement, and so "getting the hang of it," is not actually study; and without study the subject-matter read is only very partially understood.

The book before us has been based mainly upon the author's lectures and the work set for his students' draughting courses. To his students this work will doubtless prove to be of great value, and will be useful only in a lesser degree to many other workers outside the University of Toronto. There are many unsolved examples for the use of testing the reader's skill, as well as references to standard works dealing with the subjects under consideration. It is needless to say that the production of the work is fully up to the high reputation of the publishers.

Municipal Developments, Coventry.

Coventry City Council is considering the following proposals:—That an arcade should be constructed at the Smithford-street entrance of the Barracks, at a cost of £38,000; that 286 houses be erected on Hill Farm Housing Estate; that a "ring" gas main be provided round the city, at an estimated cost of £109,895. The sanction of the Ministry of Health is to be sought to the loans.

WATER PIPES AND FROSTY WEATHER

HOW BURSTING MAY BE PREVENTED

By Arthur Barnes (Instructional Staff, Northern Polytechnic, Holloway).

When water freezes and is converted into ice, there is a sudden increase in its volume; nine cubic inches of water will become ten cubic inches of ice. This additional volume will make sufficient room for itself by bursting the pipe unless it can find the necessary freedom in other directions. The force exerted when water freezes is practically irresistible; one scientist gives it as being 30,000 pounds per square inch.

Empty pipes are not affected by the frost; but of course they are put out of service. Moreover, to empty pipes is not always possible, and often it is difficult; the draw-off taps may not have been arranged for that purpose, and in the horizontal runs of the piping there may be sags which form pockets from which it is not possible to draw off the water. Further, as the pressure of the atmosphere will support, in a vacuum, a column of water having a vertical height of about 33 ft. 9 in., it follows that if a system of pipes has taps connected to it at various levels, *all* the taps must be opened if the pipes are to be properly emptied of water.

Storage cisterns also will not become frozen if they are empty, but they will be out of service; and to empty them may mean considerable loss owing to waste of water and waste of time. It will be found far better, where possible, to adopt means which will prevent the contents of cisterns and pipes from becoming frozen, so that the advantages of a full supply of water may be enjoyed without interruption. There are two methods by means of which the water in pipes and cisterns may be prevented from freezing. One is that of keeping the surrounding atmosphere above freezing point (32 degrees F.); the temperature should not be allowed to fall below 40 degrees F. The other method is to cover the pipes and cisterns with materials that are poor conductors of heat, so that the water within may not become frozen by losing heat to an atmosphere or surroundings which have a temperature below 32 degrees F.

In existing buildings where the water-pipes are fixed hard on to the walls, it is a difficult matter to protect them effectively against frost by covering them with insulating materials. In the case of lead pipes run vertically and surrounded by an insulating material, it is impossible to fix them securely unless considerable expense is incurred. Cold-water pipes which are run in horizontal wooden trough-shaped casings in the roof space may be well insulated by surrounding them with sawdust or sheet hair felt. Sawdust must not be used for insulating hot-water pipes, nor the tanks or cylinders used for hot-water storage; these should always be insulated with non-inflammable materials.

Suitable insulating materials for use where hot water has to be dealt with are sheet hair felt, strip hair felt with a backing of canvas, silicate cotton (slag wool), and asbestos compound which is applied in a manner similar to that in which plaster is applied to walls. Suitable materials for insulating cold-water pipes and storage cisterns are the two kinds of hair-felt already mentioned, silicate cotton, sawdust, and granulated cork. Where there is sufficient room, and the pipes, etc., are not exposed to view, such materials as clean and dry sacking, canvas, old pieces of carpets, blankets, and other materials of like nature, form good insulating materials, provided that they are put on in sufficient thickness; the same is true also of old newspapers. But materials that will easily take fire must not

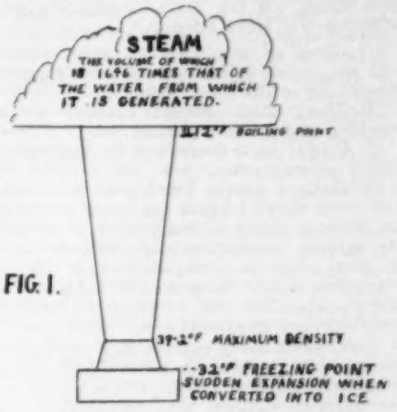

STEAM
THE VOLUME OF WHICH IS 1696 TIMES THAT OF THE WATER FROM WHICH IT IS GENERATED.
212°F BOILING POINT
39·2°F MAXIMUM DENSITY
32°F FREEZING POINT
SUDDEN EXPANSION WHEN CONVERTED INTO ICE

FIG. 1.

be used anywhere where a naked light might be brought into contact with them; in fact, when applying insulating materials that are not inflammable, the risk of fire must not be lost sight of. If pipes are covered carefully and thoroughly with sheet hair felt, a fairly satisfactory job will be the result; but as portions of such covering may be torn off easily, or as a careless workman may leave certain parts uncovered, this method of protecting pipes against frost leaves considerable room for improvement. A much better form of hair-felt is that which is backed with canvas and is made in the form of a long thick bandage about 4 in. in width; this can be wound spirally around the pipes, thereby giving them very effective protection against loss of heat.

To insulate cold-water storage cisterns effectively, it is necessary to surround them by a wooden casing made of boards of suitable thickness. This casing should extend about 3 in. above the top of the cistern, and a space of not less than 2½ in. should exist between the outside of the cistern and the inner side of the boards; this space must be filled in with sawdust, or granulated cork, to within 2 in. of the top of the cistern; these 2 in. are then filled with strips of hair-felt, which will prevent the underlying sawdust or cork from finding its way into the cistern. A light wooden cover should then be placed over the cistern, on the top edges of which it should rest; it is then covered with two or three thicknesses of hair-felt, laid on in sheets; and, if a really first-class job is desired, a strong wooden cover should be placed over all. Large wooden covers may be made in sections, so that they may be more easily removed. When very low cost is imperative, storage cisterns may be effectively protected against frost by covering them with discarded carpets, rugs, sacking, or other similar material, provided that it is dry and is sufficiently clean for the purpose. When such materials are used, they may be kept clear of the water by placing battens or stout laths across the top of the cistern.

The method of preventing pipes from bursting which is better than all others is to keep the interior of the building from falling to 32 degrees F. during frosty weather. The less important parts of a building through which pipes are run need not be kept at a temperature which strikes warm to a person entering them: if the temperature is not allowed to fall below 40 degrees F., the water in the pipes will not freeze.

In buildings all parts of which are efficiently warmed by a hot-water or a steam-heating apparatus it is an easy matter, if the boiler fire is kept going in the daytime and is properly banked at night, to ensure safety

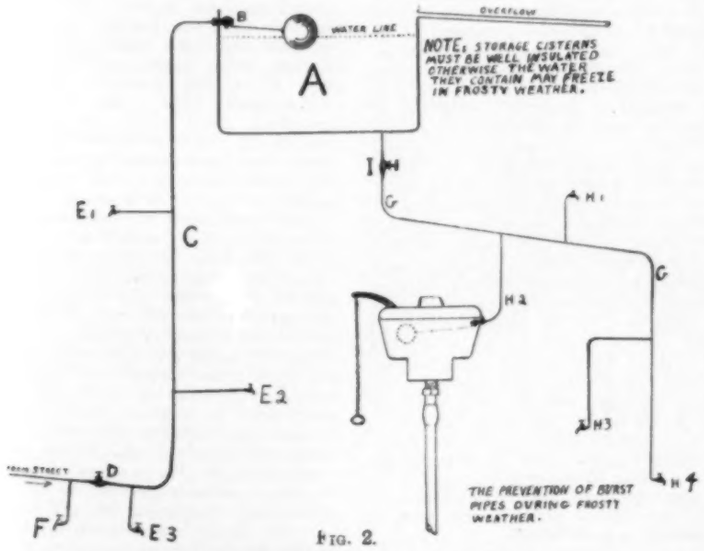


FIG. 2.

EXPLANATION AND PROCEDURE.

To shut off the water and empty the pipes, shut down the stop-cock D so as to prevent water entering the storage cistern A, through the rising main C and the ball-valve B; then open *all* the draw-off taps connected to the pipe C, which can then be emptied through the tap E 3. The taps E 1 and E 2 are for the supply of drinking water; unfortunately this desirable provision is omitted in numerous instances. Two taps are shown; in large buildings and institutions a greater number may be necessary, but in small villas and dwellings, one tap over the scullery sink will be sufficient. Air must be admitted through the ball-valve B when there is only one draw-off tap connected to the pipe C, otherwise this pipe will not be emptied completely of water; the draw-off tap should be connected at the lowest point. To admit air under such conditions, first close D; then, leaving the stop-cock I open, draw off a few pailsfull of water from one of the taps connected to the down service pipe G; this will open the ball-valve and allow air to enter the pipe C.

To empty the down-service pipe G and the branches connected to it, close the stop-cock I, then open *all* the draw-off taps, and discharge the water from all the flushing cisterns. H 1, H 2, H 3 and H 4 are draw-off branches connected to the pipe G. By closing the stop-cock I, the waste and expense which the emptying of the cistern A would involve are avoided; it is, however, necessary to protect the contents of the cistern from freezing.

The pipe with the draw-off tap F connected to it must be safeguarded against the action of frost, as this tap will give a supply of water when all the other water-supply pipes in the building are empty.

from burst pipes, even when there is severe and continued frost out of doors; and if the storage is placed in a suitable cistern room, around which a loop of heating pipes is run, then the water contained in the cisterns will be safeguarded against freezing. But in buildings and dwellings which are without a heating apparatus of the type mentioned, other means of preventing the temperature from falling too low must be adopted; the following will serve effectively :—

(1) Close up any openings which admit cold air, especially if such air may impinge directly on to the water pipes.

(2) Hang thick woollen curtains across windows near which pipes are run.

(3) Do not leave doors open through which colder air may enter.

(4) Keep a gas-jet burning in bathrooms and water-closets; where gas is not available an oil-stove or an oil-lamp, such as is used for lighting country dwellings, may be made to serve; but it is important that the oil container of the lamp should be made of metal, and that all necessary safeguards should be taken against fire.

(5) Cover flushing cisterns with old woollen curtains or blankets, or other similar light, insulating material which, whilst giving the necessary protection, will not prevent the lever and other exposed working parts of the cistern from operating properly.

(6) Close stop-cocks; open draw-off taps; and discharge the contents of flushing cisterns before retiring at night; also see that gas-jets and oil-stoves or lamps are so arranged that they will continue to burn safely until the morning.

The closing of stop-cocks will not prevent pipes from bursting; if the pipes remain full of water and the water becomes frozen, the pipes may burst, whether the stop-cock is open or closed. It is, nevertheless, a wise procedure to close stop-cocks at night, or whenever a house is left unattended, as it may, in the event of a burst, prevent the escape of a large volume of water, which might cause considerable damage and annoyance.

It is very unwise to leave a tap running for the purpose of preventing the freezing of water in pipes, as not only may it fail to bring about the desired result, but it entails a waste of water which cannot be justified. When water-pipes are frozen indoors it is best not to apply a naked flame to them for the purpose of thawing the ice unless it is certain that the materials of construction which surround the pipe are absolutely fireproof; the risk of fire must not be overlooked. Raising the temperature sufficiently, of the room or other place, by one or other of the means already suggested may take longer, but it is much safer. If a branch over a sink is blocked with ice at a point near the draw-off tap, it may be cleared by first opening the tap and then pouring boiling water over the pipe and the tap; but in nearly all other instances the thawing of ice in pipes by pouring hot water on them is quite impracticable.

TABLE OF THE RELATIVE VALUES (EFFICIENCY) OF VARIOUS INSULATING MATERIALS.

The unit is 1.00 (hair-felt).

Loose wool	3.35
Hair felt	1.00
Silicate cotton (slag wool) ...	.85
Straw rope	.75
Cork	.71
Sawdust	.68
Asbestos	.50

Frost, and the Cause of Kitchen Boiler Explosions in Winter.

Unfortunately, many domestic hot-water supply installations have no safety-valve connected to them, and in such instances frost is sometimes the indirect cause of kitchen-boiler explosions. If the water in the cold-water feed-pipe and in the expansion pipe (from which air and steam may escape) is frozen solid, or if the primary flow and return pipes are blocked in a similar manner, and a fire is lighted, the boiler of a domestic hot-water supply apparatus may burst because of the increase in pressure which results owing to the temperature of the water having been raised to a sufficient extent by the heat of the fire.

In numerous instances, explosions have been prevented because the proper functioning of a safety-valve or the timely opening of a hot-water draw-off tap has given the necessary relief to the increased pressure. All domestic hot water supply installations should be fitted with a safety-valve, which should be fixed as near to the boiler as possible, and in a position where it will not get knocked or damaged. When possible, a separate connection for the safety-valve should be provided on the boiler.

To prevent an explosion in a domestic hot-water supply apparatus in frosty weather the cold-water feed-pipe and the storage cistern with which it is connected should be protected against freezing by the methods already explained; and a hot-water storage tank, if placed in the roof space, should be well insulated by means of silicate cotton (slag-wool) inside a box-like wooden casing surrounding the tank, or by covering the tank with asbestos compound, which is put on in a manner similar to that in which plaster is put on walls. Wire netting should first be put around the tank, and a covering of the compound, at least 1½ in. in total thickness, should then be applied in three coats. All tanks, cisterns or cylinders for the storage of hot or cold water should be shielded from currents of cold air which may enter through the roof, or through other places in the building.

If there should be reason to believe that the water in any part of a hot-water apparatus is frozen solid, a tap should be opened before lighting the fire, and if the outflow of water is not normal the fire should not be lighted. If everything appears to be acting in the usual manner, a fire may be lighted, *but a draw-off tap should be opened a few minutes afterwards*, and if there is then any increase of pressure, evidence of it will quickly be seen; should such be the case, the tap should be *left open*, and the fire should be raked out immediately; it should not be relighted until a plumber or hot-water fitter has cleared the entire installation of ice. Where expansion pipes pass through the roof space, or through other exposed positions, the entire length that is filled with water should be protected against freezing by covering it with material that is suitable for the purpose. During frosty weather, if the boiler fire is banked up at night, and allowed to burn under a slow draught until the morning, the water in the apparatus will be kept circulating, and this will eliminate the risk of the boiler exploding, provided—and this is most important—that the necessary precautions are taken to prevent the frost from cutting off the supply of cold water to the apparatus, and from blocking entirely with ice any distant and exposed parts of the expansion pipe.

The Site of Sodom.

The ruins of an old city, believed to be Sodom, one of the two so-called Cities of the Plain which, according to Genesis, were destroyed by fire and brimstone because of their great wickedness, have been discovered in the centre of the Eastern Plain of Jordan, approximately five miles to the north of the Dead Sea. The discovery is regarded as of great importance. The dead city has been brought to light by the researches of the Pontifical Biblical Institute of Jerusalem, which has been making excavations on the site for the last five weeks. Pottery and other finds show that the city was built in the early Bronze Age, and is therefore more ancient than Jericho. It possessed an advanced type of civilisation. The excavations prove that the city was destroyed by a great fire early in the dawn of history and has remained uninhabited ever since.—*Times.*

SURVEYING*

The original work by Mr. Whitelaw contains much very valuable matter on the subject dealt with, and the fact of its having reached seven editions is sufficient evidence to attest its worth. It is apparently 27 years since its first appearance, and in producing the eighth edition, as stated in the new preface, there has been such a great advance in instruments and methods that "some of the old matter must give place to new." So, now the "Eighth Edition, Thoroughly Revised and Enlarged"—as we read on the title page—has been prepared. Bearing in mind the worth of the original work, we turned over the pages anticipating much pleasure in reading the record of achievement referred to in the new preface, but except for a few pages here and there, this edition is for the most part a reprint of the 3rd edition of 1910. As a matter of fact, there are 12 chapters and some tables, which reappear faithfully for 505 pages. The "contents" at the commencement, with some slight exceptions, might be called a simple reprint. It is true that there is an appendix of 62 pages of new matter, dealing with the progress of the science of surveying, which in the preface to the 8th edition is mentioned in such terms as "The last 10 years have seen many new and wonderful instruments, while practice has altered in several directions," to which the following may be added: "The modern theodolite, small and light, but very accurate, would surprise the fathers of the geodetic surveys of the world. The method of levelling has been altered, and much greater precision can be attained." Yet all this achievement is dismissed in a sequence of footnotes, frequently necessitating the resetting of the type, and a few pages have been rewritten, but for the most part the pages have been made to correspond with the old. In the chapter on Soundings, page 320 has been expanded to six pages, so that this chapter still extends from pages 317 to 330, inclusive, as in the 3rd edition, dated 1910. We think it would have been much easier for the student's reading if these footnotes, and the new matter, had been placed logically in the text throughout, particularly as so much of the matter has had to be reset.

The treatment of the "new and wonderful instruments" which are "small and light, but very accurate," has been, we think, much too brief to do them justice, and we differ with the writer's statement on page 525, that the optical features need not be described at length. Surely the degree of confidence a surveyor will feel in his work must depend in large measure upon his appreciation of the ability of his instrument to measure accurately. There is also the necessity for the surveyor to know enough about the details of his instrument to be able to adjust it in the field, for it is usually impossible to have an instrument maker at his elbow during a survey. To the uninitiated, the true value of the Watt's theodolite cannot be properly appreciated, and we would suggest that it merits at least equal space to that allotted to the common and now well-known standard instrument shown in figs. 51, 52 and 53 in chapter II. The same criticisms may be made concerning the reference to "Modern Levels" which have done so much to alter "the method of levelling."

We have felt compelled to call attention to these points, because we have valued our "Whitelaw" for its many good features, and could have wished that the opportunity offered by the new edition had been more completely utilised and that this really admirable work had, in the words of the title page, been "thoroughly revised and enlarged."

* "Surveying as Practised by Civil Engineers and Surveyors. By John Whitelaw, Junior. Eighth Edition, Thoroughly Revised and Enlarged by Col. Sir [illegible] Risley Heath. (London: Crosby, Lockwood and Son, 1929.) Price 16s.

ARCHITECTS' & BUILDERS' INQUIRY BUREAU

We are glad to give questions and answers, but cannot accept responsibility for contributed replies, especially on legal matters.

May we appeal to our correspondents to submit their queries on paper of a size easily filed, and written as legibly as possible, or, better still, in typewriting?—ED.

Waterproofing Brickwork Outside.

SIR,—Can you suggest a reliable waterproofer suitable for making a good permanent job? Cost not first consideration.

REGULAR READER.

Boiler Fuel.

[REPLY TO "HOUSEHOLDER," JANUARY 3.]

SIR,—Coke, in my opinion, is the cheapest fuel, and with a properly handled boiler it will prove as economical as any, in a boiler suitable for its use. A proportion of good anthracite may reduce the labour of stoking, but will probably not reduce the fuel bill.

STOKER.

[A reply to this query has been posted to our correspondent.]

Profit Basis.

[REPLY TO "FAIR BASIS," DECEMBER 13.]

SIR,—Builders, in rendering accounts, generally add one-third to the cost of labour and materials. When the annual audit is completed, however, establishment charges having been reckoned with, the profit is reduced to one-fourth. On this basis contractors can pay their way.

JOHN M. FIFE.

Special Type of Brick.

SIR,—It has been brought to my attention that there is manufactured and used in England a new type of building brick, made with a special groove, thereby eliminating the necessity for cement, so that entire buildings can be erected by simply fitting one brick into the other. Could you tell me the name of the patentee or owner of this type of brick?

J. P. DOWLING.

Houses per Acre.

SIR,—I have just bought a piece of land 2,080 yds. super, with a frontage of 144 ft. It is situated in an urban district, and I wish to build houses within the subsidy size upon it, for letting. I propose to build ten houses on this piece of land, but have been told that I shall only be allowed to build six, owing to the restriction of density of houses per acre. At the back of my land are open fields. I should be greatly obliged if you would let me know the number of houses I am allowed to build on this piece of land, by law.

J. W. B.

Close Tendering.

SIR,—When, in tendering, ten or twelve contractors come so near in price, what explanation is there for such close estimating? I appreciate that the costing for the work specified is likely to be the same, but is there a usual or recognised profit to be added on cost? I am puzzled at this nearness of price, for the overhead charges of different firms must differ. Another point is that engineering firms add perhaps 100 per cent. on cost to their products, whereas 15 per cent. seems the most that should be added.

C. C. M.

Vibration.

[REPLY TO "VENTURE," JANUARY 3.]

SIR,—I take it "Venture" means that his building will be at the side of a railway cutting, in which case, if it is not on rock, there will be appreciable risk from vibration. For suitable precautions see *The Builder*, September 20, 1929, page 485.

J. R. T.

SIR,—The question depends almost entirely on the nature of the foundations. If the cutting of the railway is in hard gravel or rock, or similar material, a well-built building should need no special precautions, but if the foundation is more treacherous, special treatment depending upon the special characteristics of the case will be necessary.

ROCK.

Cost of Building.

[REPLY TO "TENDERS," JANUARY 3.]

SIR,—A large contracting business must be equipped with an establishment capable of dealing with large and complicated contracts, and such an establishment must be maintained by spreading the cost of it over all the works dealt with. In small work this is a tax on the job, which the small working builder does not have to provide against. The latter is unable to compete in the larger jobs, but is able to run the small jobs with very little office or works establishment, and it is therefore reasonable to expect such a firm to tender considerably lower for small jobs than the larger firms can manage. A considerable difference between the tenders of such firms as the above need not cause too much reflection or misgiving as to whether the value which is being provided is proportional to the tenders.

PRACTICE.

Cavity Walls.

[REPLIES TO "ANXIOUS." JANUARY 3.]

SIR,—Lime mortar, gauged one part cement to six parts mortar, is the best to use. The work should not be pointed in cement. Such pointing in a foreign material is likely to come out with the first half-dozen frosts coming on top of wet spells. Pointing with trowel pressure has a similar effect, and is less satisfactory than the natural mortar wiped off flush. Given well-flushed joints, lime mortar continues to harden, and is well up to an exposed position.

METHOD.

SIR,—"Anxious" will do well to abandon the idea of having cavity walls and adopt the following method in preference:—Build entirely in stretcher bond as though for cavity work. Use wall ties of twisted wire for bond. Above dampcourse build up four courses of facings to outside. Render the inside of this with waterproof cement mortar; build inside against this, lay on wall ties and flush with cement and proceed as before. Above all, be careful that the waterproof cement mortar is mixed strictly in accordance with maker's instructions. Failure is due to want of attention to this point, though the material is often blamed. Instil into the bricklayers the importance of the coat of cement rendering to interior of the wall being properly done, with no misses. No more of it should be applied than can be covered up by the lining bricks before it sets. I have seen brick storage tanks thus constructed that, when filled with water, gave no sign of leaking.

J. R. TAYLOR.

Acoustics.

[REPLY TO "J. L. C.," DECEMBER 27.]

SIR,—The subject of acoustics is one which until comparatively recently has been shrouded in obscurity, and acoustical problems have been dealt with in a haphazard way, which made their ultimate solution largely a matter of luck. A good example of this is the case cited by your correspondent, "J. L. C.," who states that wires have been stretched across the auditorium in which he is experiencing trouble. This was a very common method of attempting to improve the acoustics of buildings, but it can be shown that the wires have practically no effect on the acoustic conditions. To quote the late Professor W. C. Sabine, probably the greatest authority on this subject, the only advantage which can be claimed for the use of wires is that their effect is absolutely negligible.

The chief cause of bad hearing conditions in an auditorium is due—as your correspondent suggests—to excessive reverberation, which, however, must not be confused with echo, which is a different defect and may generally be cured by localised treatment. Reverberation is caused by sound waves striking the hard reflecting surfaces of the auditorium and being reflected back and forth from the ceiling, walls, and, to a lesser degree, the floor, until they die into inaudibility. Where highly reflective surfaces are used as an interior finish, the time taken for a note or syllable to die out is so long as to permit several more notes or syllables to be uttered before this is effected, thereby setting up a condition of hopeless confusion. The best method of preventing this is to incorporate material in the structure which will absorb a percentage of the sound which strikes it, thus reducing the number of reflections that occur before the sound reaches inaudibility and speeding up the decay of sound.

Materials possessing this quality must not be used indiscriminately, however, and it is a matter of mathematical calculation to determine the correct amount to use and the position of application. It is, again, very important, especially where music is to be heard, that the selected material should have not only a reasonably high power of absorption, but should—more important still—have even absorption over the entire range of useful frequencies, or otherwise a very uneven effect will result. This is the fault of many felts which are used for the purpose of acoustical correction.

This subject is too wide to be dealt with adequately through the medium of a correspondence column, but the writer would be pleased to give a full analysis of the auditorium in question, with recommendations for curative treatment, on hearing from your correspondent.

D. J. R.

Damp Walls.

[REPLY TO "ARCHITECT," DECEMBER 20.]

SIR,—Whether to apply a waterproof coating to the outer surfaces of walls that are already wet, or to trust in Providence that they will not become further saturated by rain before the summer weather dries them out, is a matter that can only be decided in view of the particular circumstances of each case. It is quite obvious that an impervious coating upon the outside of the wall will shut in the moisture that this wall already contains, and it must thereafter dry out into the house. A certain amount of the moisture will, in any case, evaporate from the inner surfaces of the walls, and therefore it would be a reasonable step to stop the ingress of further moisture. The client should, however, be clearly informed that the good effects of this outer application will not be apparent until this drying out has taken place. When newly-constructed walls completely dry out, they develop a resistance to the penetration of rain that is lacking whilst they are saturated with the moisture of construction, and in such circumstances a temporary weatherproofing, in the form of a transparent liquid, applied to the outer face, may serve a useful purpose, but any wall built solid and of no greater thickness than 9 in. is inadequate to keep out the weather, except in most sheltered places. If it cannot be cemented on the outer face, then it is a wise precaution to form the undercoats of the interior plastering in waterproofed cement mortar, and that course will also provide an immediate remedy for dampness that already exists.

PLUVIUS.

Exhibition of Italian Art.

Sir Robert Witt, who presided on Tuesday at a lecture at Queen's Hall, announced that the attendance during the first week of the Exhibition of Italian Art was 40,000. In the same period admissions to the Flemish Exhibition were 17,000, and the Dutch Exhibition last year 23,000. For the Italian Exhibition 6,500 tickets have been purchased up to the present, compared with 4,500 for the Flemish Exhibition up to the same date.

THE BUILDING TRADE

THE USE AND ABUSE OF BUILDING MATERIALS—II

By A. M. GILES, B.Sc., A.I.Struct.E., A.M.I.E.E.

Sandstones.—As stated in the previous article, sandstones consist of disrupted particles of igneous rocks. These particles have been carried along by water and then deposited in beds or layers. They are there bound together by some cementing material, and the quality of the stone depends more upon this cementing material than anything else. It is, therefore, of prime importance that a knowledge of these cementing materials should be available when deciding upon the kind and quality of stone to be used for building purposes. Thus, the colour, hardness, strength and durability of sandstones are, in the main, due to the properties of the binding or cementing material; *e.g.*, bad cementing materials make for bad weathering or durability.

The chief cementing materials are silica, clay, oxides of iron, and calcite or dolomite, the latter being really different forms of lime carbonate. One or more of these materials may be found in a sandstone, though in nearly all cases one will predominate. Silica is certainly the best for durability and resistance to weathering, though, unfortunately, it makes the stone hard and difficult to work. When combined with clay it makes a very good binding agent, and at the same time reduces the difficulties of working. The clay cement, however, readily absorbs water, and this reduces the stone's durability since it is unable to withstand the action of frost.

It is acknowledged that oxides of iron form a fairly good cementing material, and the different colours found in sandstones are ascribed to the presence, as cementing material, of one or more of the compounds of iron. The red, brown and yellow varieties contain oxides of iron, while the blue and the green contain iron carbonate. The colourless or nondescript stones usually contain silica and clay as cementing material. The worst cement of all is lime carbonate. This, because of its solubility in water, makes for very bad weathering properties.

Sandstones may be either fine- or coarse-grained, and the selection really depends upon the purposes for which the stone is required. For example, Bristol is a blue, fine-grained stone. It is hard and is considered to be very durable, and is used for steps or landings.

Robin Hood is another fine-grained, bluish-grey stone. It is largely used for copings. Other sandstones that might be named are the two kinds from the Forest of Dean, viz., the grey bed, and the blue bed. The latter of these is very hard and has a crushing strength of about 630 tons per sq. ft. This, however, is not quite as hard as the Darley Dale sandstone, which is a close-grained stone of light drab to yellow colour. Its crushing strength is about 670 tons per sq. ft.

In the selection of stones for building purposes one point stands out as of immense importance, viz., that the natural bed, or plane of cleavage, should be clearly marked. This, to the expert, is perhaps scarcely necessary, but to the many users of building stones who, possibly, are not so familiar with their natural properties, it must be of great help, since it is always a distinct advantage that the stone, when placed in position, should have its natural bed in a horizontal plane.

Another point worthy of consideration in the selection of a sandstone is to examine the fresh surface of a newly fractured piece. It should be examined under a lens, when it should show a sharp, clean surface; its grains should be uniform and well cemented together. It should have a density of approx. 130 lb. per cub. ft., and should not absorb more than about 5 per cent. of water after a 24 hours' immersion.

Limestones.—As stated previously, these stones are the result of water deposits in lake or sea. They are formed in layers or strata, and they differ from sandstone in that their principal constituent is carbonate of lime, or calcium carbonate as it is chemically named. Their composition and characteristics are fairly varied, for although carbonate of lime is their chief constituent, they may contain magnesium carbonate, silica, alumina, and iron compounds in small and varying quantities.

Some are crystalline in character, while others may consist of shells and fossils cemented together. Rocks of coral formation are mainly limestone. Marble, which is a metamorphic form of limestone, is the hardest and most compact. Its colouring arises from the small quantities of iron

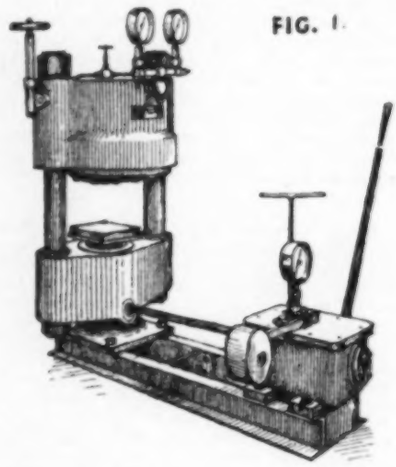


FIG. 1.

compounds in its composition. It takes a very high polish and is largely used for decorative purposes.

Though limestone is less durable than sandstone or granite, nevertheless large quantities are used for building purposes. In selecting it for such purposes one should see that it is fine and even grained, that it has no cracks or vents, and that it is easily worked. Its great disadvantage is that it absorbs large quantities of water, and this in itself makes it less durable than other stones.

This disadvantage can be partly overcome by allowing it to remain for some time exposed to the air after it has been worked, thereby giving the "quarry sap" a chance to evaporate. Further, it will endure much longer and resist greater stresses if care is taken that it be always laid on its natural bed when used. Johnson, in his "Materials of Construction," says that "Limestone is the trade name for all stratified rocks which consist principally of calcite, or a combination of calcium and magnesium carbonates. Should the limestone contain from 15 to 40 per cent. of magnesium carbonate, then it is called magnesian limestone, while those which contain equal quantities of the two carbonates are called 'dolomites,' and those whose principal constituent is magnesium carbonate are called 'magnesites,' as distinct from 'calcites,' in which calcium carbonate is the main constituent."

Oolitic Limestone.—A limestone which contains a preponderance of lime carbonate in its composition is generally described as "oolitic." If a piece be crushed its interior shows rounded grains—something like the roe of a fish—bound by a cementing material of either silica, alumina, or oxide of iron. By some people it is considered the most common form found in this country. It may be either fine- or coarse-grained. The latter kind will naturally be more porous. Like most stones, it will be soft when first cut or worked, but if left, will harden by exposure to the atmosphere.

Bath Stones.—These are oolitic limestones. Generally speaking, they are good for most kinds of architecture. In colour they vary from buff to cream. They are easily worked, and if, when placed in position, they rest on their natural bed they stand the weather very well. It is usually acknowledged that their durability in London is much better than other limestones.

Of the different kinds, mention might be made of "St. Aldelm," which has a crushing stress of approx. 107 tons per sq. ft.; "Corsham Down," which may be used for the interior of churches, and even for facing stones; and "Monk's Park," which by many is considered to be the best of the Bath stones. It is close-grained, weathers well, can be used for interior or exterior work, is almost white in colour, and has a crushing stress of about 220 tons per sq. ft.

Portland Stone.—This is another oolitic limestone. Geologists tell us that the Portland beds lie above the Kimmeridge clay and below the Purbeck beds and are found mostly around Portland in Dorsetshire. The Portland beds are, in the main, limestones, and contain many fossilised shells. They are used extensively in building work. In general these Portland stones are divided into three classes, which depend upon the position in the "bed" from which they are taken. The "Roach" is occasionally used for structural work, but the "Whit-Bed" is said to be one of the best weathering stones on the market, and can be freely used for external work; while the "Base-Bed" or "Best-Bed" is generally used where carving is wanted for decorative purposes.

Among the magnesian limestones, or dolomites, one perhaps ought to mention the "Woodhouse Mansfield." This is a hard stone, crushing at about 570 tons to the sq. ft. It is of a yellowish-brown colour and weathers well.

Mechanical Tests.—Where stones are to be used for building purposes, with the exception of where they are used for decorative effects, it is safe to say that the only stress they will be called upon to withstand is that of compression. As their resistance to tension is insignificant in comparison with their ability to withstand compression, or bear loads, they are never used to withstand tensile stresses. Of course, there are occasional instances in which they have to support bending loads, such as when they are used above doorways and windows, and it is only fair to say that in such cases the builder should have available plenty of experience as well as reliable test figures, in order to know whether the stone will give just what he is expecting of it.

There is plenty of authority for saying that before using stones for any purpose, unless practical experience is available, tests as to strength and durability should always be carried out. The crushing test is by many considered to be the most important mechanical test. Among the many things that seem to make it necessary are faulty quarrying, discrepancies in the bedding planes, and, what by many is considered of more importance, the irregularities in foundations and mortar bedments.

These latter irregularities may produce bending stresses which crack the stone long before any crushing could possibly arise.

The test consists of placing a cube, prism, or cylinder of stone upon the testing machine and of finding what load will crush it; then, by calculation, of determining the crushing stress per square foot. The writer may perhaps be allowed to say here that he has carried out hundreds of such tests with the students in the School of Architecture and Building at the Northern Polytechnic. Fig. 1 is an illustration of the machine used. It is a hundred-ton, hydraulic testing machine, and is described on page 18 in the writer's book on "Everyday Science for Architects and Builders," which is published by *The Builder*, Ltd.

Granites, sandstones, and limestones of different sizes and from different quarries have been tested. The specimens have been mostly cubes of 3-in., 4-in., or 6-in. sides. In a few cases the specimen has taken the whole load of 100 tons without showing any sign of cracking or flaking. To get the crushing stress in these cases therefore it has been necessary to use smaller specimens.

The definition of crushing stress is not altogether uniform. By some it is taken as the load per unit area, *i.e.*, one sq. in., which produces crushing; by others it is given as the load per sq. ft. Naturally, in order to make comparisons, it is necessary to give the values in either tons per sq. in. or tons per sq. ft.

Below is a list of the actual values of tests made by the 100-ton testing machine shown in the figure.

Specimen	Crushing Stress in Tons per sq. foot.
Granite:—	
Leicester	381.6
Devon	460.8
Sandstone:—	
Blue Pennant	476.6
Robin Hood	752.0
Corshill	339.0
Limestone:—	
Ancaster	99.36
Monk's Park	88.48
Lafayette	326.88
Longchamp	272.16
Hartham Park ...	139.6
Portland, Perpr. to Bed	504.0
Portland, Paral. to Bed	256.3

One very obvious result of the numbers of tests that have been conducted is an endorsement of the statement that the products of different quarries, and even stones from different parts of the same quarry, vary considerably in their mechanical strength. In very few cases have the numbers obtained reached those claimed by the purveyors of the stone, and in still fewer cases have the numbers obtained exceeded those claimed.

Nevertheless, it is as well to repeat what has been said above, viz., that these mechanical tests should be undertaken. In preparing the specimens for testing, roughing them out by hammer and chisel should be avoided. It is better to saw them out from the interior of blocks which are rather larger than the specimen required.

While a test is being carried out certain observations should be made and noted, for example:—

(*a*) The position of the first crack as well as the unit stress, *i.e.*, pressure per sq. in. when it appeared.

(*b*) The crushing stress.

(*c*) The character of the rupture, *i.e.*, whether explosive or not.

(*d*) The shapes taken by the pieces of stone after rupture.

MODERN FOUNDATIONS

It is difficult to realise that it is not much more than thirty years since the architect was limited in his choice of foundations to timber piles or mass concrete piers carried down to a firm stratum. The interval has seen the development of many piling processes, and the introduction of reinforced concrete foundations of varied types.

Foundations may be divided into three classes:—(*a*) Isolated footings; (*b*) continuous footings, and (*c*) rafts. Each of these may be constructed in one of many ways, depending on the nature of the subsoil. This may vary from solid rock to an almost semi-fluid mud, upon which some years ago no architect would have dared to build.

The first step before designing the foundations is to examine the ground below the site by boring, or preferably by trial pits in order to determine the nature of the subsoil and the depth at which a firm foundation can be obtained. The results of this inspection may be used to help in deciding upon the safe load per square foot which can be imposed on the ground. In case of doubt respecting the safe bearing capacity of the ground, a series of loading tests may be made at selected points. The allowable pressure of foundations on the natural ground is limited by the London County Council to 1 ton per square foot on a natural bed of soft clay, or wet or loose sand; 2 tons per square foot on a natural bed of ordinary clay or confined sand, and 4 tons per square foot on a natural bed of compact gravel, London blue clay or chalk. The pressure on concrete foundations is limited to 12 tons per square foot.

In accordance with the London County Council (General Powers) Act, 1909, when calculating the loads on foundations of buildings more than two stories in height, the superimposed loads for the roof and topmost story must be taken in full, but a reduction is allowed in the superimposed loads on the lower stories, except in the case of buildings of the warehouse class.

Isolated footings resting on good ground within a reasonable distance from the surface may be designed in mass concrete reaching up to ground level, and supporting the stanchion base-plate. When the stanchion loads are very heavy, as in modern steel-frame construction, it is now customary to transmit the load to a steel slab—6 in. or so in thickness—supported by a concrete footing. The mass concrete footing is seldom used for depths of more than 15 ft.

If a reinforced concrete footing be used instead of plain concrete, there is often a considerable saving in the quantity of concrete required, but this is partly offset by the extra cost of the steel reinforcement and of the shuttering if the pyramid shape footing is adopted.

The steel grillage, consisting of two layers of rolled steel joists encased in concrete is often employed where the superstructure is a steel-framed building. The concrete in this case acts merely as protection to the steel, and does not resist stress. Some very heavy foundations were required to carry loads supported on the steel stanchions of the new picture theatre at Wilton Road, S.W., for Provincial Cinematograph Theatres, Ltd. Foundation level is at 29 ft. 6 in. below the adjoining footpaths. The excavation was made in river mud (containing shells, and in which many old mooring-posts were found) and through an average of 15 ft. of ballast; the latter was used for the concrete work, and the sand separated from part of it for brickwork and plastering. The grillage for one of the stanchions supporting the 93-ton girder and the 103-ft. span roof girder, the weight of which is 60 tons, is shown in Fig. 1. This grillage consists of two compound girders each 24 in. wide by 21¼ in. deep, supported on thirty-three 14-in. by 6-in. joists each 6 ft. 6 in. long. Between each pair of 14-in. by 6-in. joists there is a clear space of 6 in. Formwork was not required round the grillage, the surrounding subsoil being able to stand vertically. The concrete was mixed in the proportions of 8 parts of ballast to 1 of ordinary Portland cement by volume. The cement was measured in a wood gauge box. Concrete was transported by barrows on a runway. Fig. 2 illustrates another type of grillage footing.

Fig. 1.

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The chief cementing materials are silica, clay, oxides of iron, and calcite or dolomite, the latter being really different forms of lime carbonate. One or more of these materials may be found in a sandstone, though in nearly all cases one will predominate. Silica is certainly the best for durability and resistance to weathering, though, unfortunately, it makes the stone hard and difficult to work. When combined with clay it makes a very good binding agent, and at the same time reduces the difficulties of working. The clay cement, however, readily absorbs water, and this reduces the stone's durability since it is unable to withstand the action of frost.

It is acknowledged that oxides of iron form a fairly good cementing material, and the different colours found in sandstones are ascribed to the presence, as cementing material, of one or more of the compounds of iron. The red, brown and yellow varieties contain oxides of iron, while the blue and the green contain iron carbonate. The colourless or nondescript stones usually contain silica and clay as cementing material. The worst cement of all is lime carbonate. This, because of its solubility in water, makes for very bad weathering properties.

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Another point worthy of consideration in the selection of a sandstone is to examine the fresh surface of a newly fractured piece. It should be examined under a lens, when it should show a sharp, clean surface; its grains should be uniform and well cemented together. It should have a density of approx. 130 lb. per cub. ft., and should not absorb more than about 5 per cent. of water after a 24 hours' immersion.

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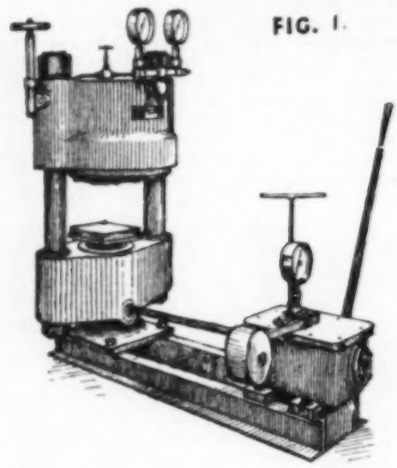

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Though limestone is less durable than sandstone or granite, nevertheless large quantities are used for building purposes. In selecting it for such purposes one should see that it is fine and even grained, that it has no cracks or vents, and that it is easily worked. Its great disadvantage is that it absorbs large quantities of water, and this in itself makes it less durable than other stones.

This disadvantage can be partly overcome by allowing it to remain for some time exposed to the air after it has been worked, thereby giving the "quarry sap" a chance to evaporate. Further, it will endure much longer and resist greater stresses if care is taken that it be always laid on its natural bed when used. Johnson, in his "Materials of Construction," says that "Limestone is the trade name for all stratified rocks which consist principally of calcite, or a combination of calcium and magnesium carbonates. Should the limestone contain from 15 to 40 per cent. of magnesium carbonate, then it is called magnesian limestone, while those which contain equal quantities of the two carbonates are called 'dolomites,' and those whose principal constituent is magnesium carbonate are called 'magnesites,' as distinct from 'calcites,' in which calcium carbonate is the main constituent."

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Isolated footings resting on good ground within a reasonable distance from the surface may be designed in mass concrete reaching up to ground level, and supporting the stanchion base-plate. When the stanchion loads are very heavy, as in modern steel-frame construction, it is now customary to transmit the load to a steel slab—6 in. or so in thickness—supported by a concrete footing. The mass concrete footing is seldom used for depths of more than 15 ft.

If a reinforced concrete footing be used instead of plain concrete, there is often a considerable saving in the quantity of concrete required, but this is partly offset by the extra cost of the steel reinforcement and of the shuttering if the pyramid shape footing is adopted.

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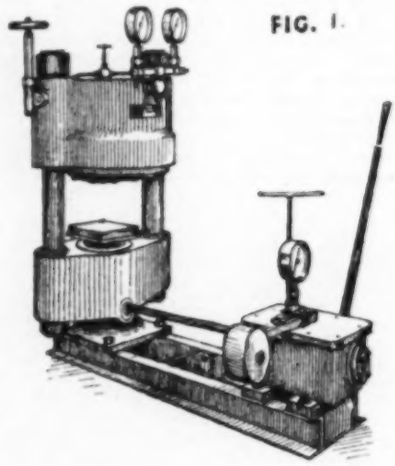

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Fig. 1.

In accordance with the London County Council (General Powers) Act, 1909, when calculating the loads on foundations of buildings more than two stories in height, the superimposed loads for the roof and topmost story must be taken in full, but a reduction is allowed in the superimposed loads on the lower stories, except in the case of buildings of the warehouse class.

Isolated footings resting on good ground within a reasonable distance from the surface may be designed in mass concrete reaching up to ground level, and supporting the stanchion base-plate. When the stanchion loads are very heavy, as in modern steel-frame construction, it is now customary to transmit the load to a steel slab—6 in. or so in thickness—supported by a concrete footing. The mass concrete footing is seldom used for depths of more than 15 ft.

If a reinforced concrete footing be used instead of plain concrete, there is often a considerable saving in the quantity of concrete required, but this is partly offset by the extra cost of the steel reinforcement and of the shuttering if the pyramid shape footing is adopted.

The steel grillage, consisting of two layers of rolled steel joists encased in concrete is often employed where the superstructure is a steel-framed building. The concrete in this case acts merely as protection to the steel, and does not resist stress. Some very heavy foundations were required to carry loads supported on the steel stanchions of the new picture theatre at Wilton Road, S.W., for Provincial Cinematograph Theatres, Ltd. Foundation level is at 29 ft. 6 in. below the adjoining footpaths. The excavation was made in river mud (containing shells, and in which many old mooring-posts were found) and through an average of 15 ft. of ballast; the latter was used for the concrete work, and the sand separated from part of it for brickwork and plastering. The grillage for one of the stanchions supporting the 93-ton girder and the 103-ft. span roof girder, the weight of which is 60 tons, is shown in Fig. 1. This grillage consists of two compound girders each 24 in. wide by 21¼ in. deep, supported on thirty-three 14-in. by 6-in. joists each 6 ft. 6 in. long. Between each pair of 14-in. by 6-in. joists there is a clear space of 6 in. Formwork was not required round the grillage, the surrounding subsoil being able to stand vertically. The concrete was mixed in the proportions of 8 parts of ballast to 1 of ordinary Portland cement by volume. The cement was measured in a wood gauge box. Concrete was transported by barrows on a runway. Fig. 2 illustrates another type of grillage footing.

The loads on two or more columns may often be transmitted to the ground by a single footing of such dimensions that the centre of gravity of the footing lies vertically below the centre of gravity of the loads. The latter requirement often necessitates the use of a trapezoidal footing, since the column loads will seldom be equal. The combined type of footing is particularly advantageous where it is impossible to construct an ordinary square footing to a stanchion which is close to the building line. By using reinforced concrete or a steel grillage it becomes practicable to obtain uniform pressure on the ground, even when one stanchion is at the edge of the footing.

In many cases good bearing strata are not reached until the depth below ground level is considerable. The architect is then faced with the choice between deep footings or a raft to spread the load over a large extent of ground at a shallower depth. The former case requires the use of piles carrying the loads on their points, or on the sides, or

partly on each. Cylinders are sometimes substituted for piles, especially where the loading is very heavy.

For many reasons, apart from the scarcity and high cost of timber of suitable scantling and length, timber piles are seldom used at the present time. They are not durable above ground water level, and they require more excavation around their heads to form the pile caps than do reinforced concrete piles, whether pre-cast or cast *in situ*. The pre-cast reinforced concrete pile is more commonly used than that which is cast *in situ*. It has the advantage that its section can be designed and reinforced to resist any load, whereas the cast *in situ* pile is sometimes

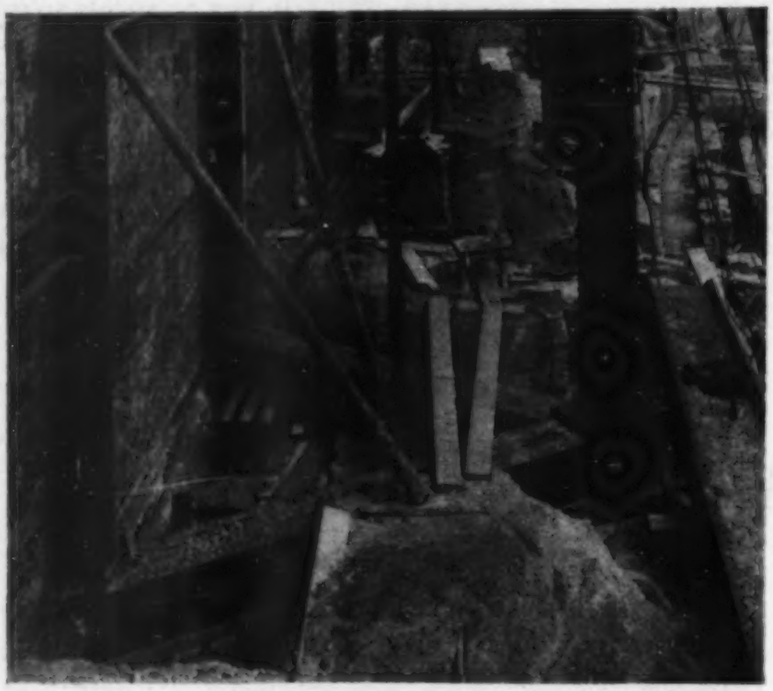

FIG. 2.

restricted to a certain diameter and length. The pre-cast pile is reinforced with four, eight or twelve longitudinal bars according to its size, and with hooping or spirals. The pitch of the latter may by 6 in. or 9 in. near the middle of the pile, but at the ends a closer pitch, say 2½ in., is generally provided in order to resist the stresses due to the impact of the hammer on the pile head.

By using rapid-hardening Portland cement in making the piles it is possible to drive them in four days or less after they have been manufactured. This factor has naturally reduced the cost of reinforced concrete piles, since it is no longer necessary to season them for six to eight weeks, an operation which entails extra cost in shuttering and in rent of a casting yard.

The ultimate load which can be carried by a pile is often determined by the Brix formula :—

$$U = \frac{H}{S} \times \frac{PW^2}{(W+P)^2}$$

in which H = drop of hammer (ft.),
P = weight of pile (tons),
W = weight of hammer (tons),
S = average final set (in.),
and U = ultimate load (tons).

It will be observed that the weight of the pile is an important factor in determining the ultimate load, and formulæ which neglect W should not be used.

The principle of forming a cast *in situ* pile is to drive into the ground a hollow cylindrical steel tube with a conical driving point. When the pile has been driven to the required distance the shell is filled with concrete and withdrawn. In one system the tube is withdrawn at a steady rate, while in another method the tube is withdrawn by the pile hammer, which works automatically in this operation. The hammer gives a blow upwards on the extracting links, which jerks the tube upwards a short distance. The inertia of the concrete overcomes its frictional resistance on the sides of the tube, and it remains stationary in effect, being deposited from the end of the tube. Then the hammer falls and gives a light cushioned blow on the head of the piling tube, which tamps the deposited layer of concrete downwards and outwards under the tamping rim, forcing it well into contact with the surrounding ground, and ensures good connection with the steel reinforcement.

In another type of cast *in situ* pile, the pile is formed by driving pre-cast reinforced concrete shells into the ground by means of a steel mandrel with a helical projection fitting the grooves on the inside of the shells. The pile is driven to the required set, after which the mandrel is withdrawn by unscrewing it from the shells. The latter remain in the ground, and are filled with concrete, which may be reinforced if desired.

In a third type, boring tubes are sunk by their own weight; the excavation is removed from inside them as they sink, and gives a guide to the nature of the substrata at various depths. By means of an auger a depth of two or three feet below the bottom of the tube is removed from the final bearing stratum. All the hoisting of the tube and boring tools is done by an air-driven winch. A cage of steel reinforcement is lowered into the tube, the pressure cap is screwed on the upper end of the tube, and compressed air from an Ingersoll-Rand compressor is admitted to blow out any subsoil water through a pipe reaching to the bottom of the tube. Cement grout is then admitted under an air-pressure of over six tons per square foot, compressing the grout into strata below the tube, and forming an extended foot to the pile (Fig. 3). The next operation is to introduce concrete into the tube and turn on the air again, thus forcing the concrete against the surrounding ground and increasing the diameter of the pile beyond that of the bore-hole. The upward pressure of the air on the cap lifts the tube, but the bottom of the latter is always kept at some distance below the upper surface of the concrete to prevent water or earth entering the bore-hole. If there are any very soft layers of materials in the subsoil the air pressure forces the concrete outwards, forming collars on the pile at these places, and thus increasing the skin friction on the sides of the pile.

In cases in which, owing to errors of judgment concerning the safe bearing capacity of the ground, settlement of the foundations has occurred, and the superstructure has cracked, the work may be underpinned with "Pressure" piles. These have been used successfully on several contracts in the repair of foundations which were damaged by the contraction of the clay, due to the very long period of dry weather during the summer of last year.

Wall footings on good ground are now usually constructed in reinforced concrete, the slab projecting on both sides of the wall. The projections are reinforced to act as cantilevers loaded by the uniform upward pressure of the ground. The thickness of the slab is generally governed by the shearing stress on the concrete.

On sites with ground of a poor bearing capacity near the surface, the walls are usually carried on reinforced concrete beams or on steel joists encased in concrete and spanning between the piles or mass concrete piers under the main stanchions. Adequate caps must be constructed on the pile heads to enable a good connection between pile and beams being made.

A raft foundation may be designed as a plain slab of concrete, reinforced near both top and bottom surfaces by a mesh of bars in rectangular directions. With uniform spacing of columns, the raft is often designed as a two-way or four-way flat slab conforming with some of the standard American regulations. A third type consists of beams and girders, in some ways similar to an inverted floor. It is usual practice to place the beams above the slab, so as to save the steel otherwise required to tie the slab down to the beams.

An interesting example of a raft is that built at a gasworks on a portion of an extensive flat, which was formerly swampy ground, but which has been reclaimed by the deposit of 3 ft. to 5 ft. of refuse. Bore-holes indicated that the underlying forma-

FIG. 3.

tion consisted of fine silt, and that the same character continues to a depth of 500 ft. The water content of the silt is estimated at 15 to 20 per cent. The behaviour of foundations of other structures built in the vicinity indicated that the maximum safe supporting power of the silt is 10 cwt. per sq. ft.

The raft has overall dimensions of 79 ft. by 75 ft. 6 in., and supports point loads aggregating 1,877 tons, and together with the dead load of the raft itself (weighing 1,160 tons), imposes an average pressure of 10.1 cwt per sq. ft. upon the silt below. It was necessary in the design of the foundation to carry the underside down to such level as would reach the same character of soil throughout, and it was also necessary to provide a floor at ground level. Advantage was taken of these requirements to use a cellular type of construction with deep beams running in each direction, providing the necessary strength in the cantilevers to carry the reaction from the soil.

It was estimated from the particulars available that the raft would subside as a whole about 3 in.; it has been found that the subsidence recorded after the foundation had been completed twelve months does not exceed 2½ in. at any point.

THE ROOFING OF BUILDINGS IN INDIA

By "PACER."

The roofing of buildings in India is probably a more serious question than it is at home, owing to the extreme heat that has to be encountered and the torrential rains that must be resisted; it is therefore necessary to have thick roofs to resist the sun's rays, and they must be of an elastic description to prevent cracking, as the temperature varies as much as 40 degrees between day and night. The use of slates as a roofing material is practically unknown, and the materials commonly used may be divided into three categories: lime terracing, corrugated-steel sheets, and the sundry patent felts, tiles, etc. The first-mentioned material, lime terracing, is used in about 75 per cent. of the roofs, and corrugated sheets in 20 per cent. of them, leaving about 5 per cent. for all the others. The use of corrugated sheets is pretty well universal and requires no description, but the method of laying lime terracing is not so well known outside India, and an explanation may be of interest.

To within the last few years, flat roofs were constructed by carrying a layer of bricks on flat or a double layer of inch-thick flat brick tiles, on the flanges of steel tees (termed "burghas"), the tees being supported on rolled-steel joists. It was found, however, that when damp reached the webs of the tees corrosion took place, which caused a swelling of these members, the result being that the roof expanded to such an extent that the walls were pushed out, causing cracks in all the door and window arches below, and I have seen cases where the walls had been pushed out as much as 2 in. in a span of less than 30 ft. To overcome this defect, modern practice is to use a reinforced concrete slab carried on beams of the same material, or on rolled-steel joists, to form a base for the lime terracing.

The terracing consists of a 6-in. layer of lime concrete, composed of hard burnt brick broken to pass a 2-in. ring and be retained on a ¼-in. mesh, being evenly graded between these sizes. Four parts of this are mixed with two parts of "soorkie" and one part of stone lime, a 4 : 2 : 1 mixture. The "soorkie" is simply ordinary red bricks powdered to the fineness of sand, and no sand is used. This concrete should be well mixed with the addition of water, on the ground, and is laid on the roof in a layer 1 in. greater than the finished thickness, and tamped into position for five or six days to ensure thorough consolidation: during the tamping, lime water is sprinkled over the surface to keep it damp. A coat of "soorkie" and lime, of a 2 to 1 proportion, is spread on this a quarter of an inch thick, and it receives a further tamping for three days, being kept damp in the same way. Finally, a thin coat of lime punning is applied, which is also tamped in and finally polished off with steel trowels. The whole process is laborious, and cannot be hastened without spoiling the roof, but at the finish a thoroughly sound job is secured which will last for many years without attention, provided that the supporting base remains sound, as it will do in the case of reinforced concrete. Where patching or repairs have to be carried out, as is often necessary in old roofs where steel "burghas" have been used, the entire roof is often given a coat of cement and cow-dung, a crude but effective cure, as this causes an almost invisible growth to form in the pores of the old concrete, which seals them up and makes a watertight surface.

Women are employed for the tamping of the roof, and they use wooden beaters, shaped like mallets used by plumbers at home for working up lead sheet, but in this case the beating surface is about 8 in. long by 2 in. broad. The women are usually in gangs of 20 or 30, and placed along the roof in a row as close as possible, and they tamp for hours on end, gradually working forward and keeping rhythmical time to a song sung by the male sirdar in charge of the gang. Usually the songs, when translated into English, would not be allowed in the drawing-rooms of Mayfair. The cost of the finished lime terracing usually runs out at about 4d. per square foot.

Roman Fort for the Nation.

Mr. J. M. Clayton has presented the Roman fort at Housesteads, Northumberland (Borcovicus or Borcovisium) to the National Trust. Housesteads has been regarded as one of the finest Roman forts on the wall and probably in England. It commands a moorland landscape of exceptional magnificence. It is still enclosed on every side by the original stone walls, and all four gateways are extant, besides the foundations of numerous buildings. Mr. Clayton also presents to the National Trust the line of the Roman Wall adjacent to the fort for a length of some three-quarters of a mile.

PRESERVATION OF WINDMILLS

Mr. Jan den Tex, the secretary of the Dutch Windmill Society, gave a lecture on this subject, illustrated by many lantern pictures, at a meeting arranged by the Society for the Protection of Ancient Buildings and the National Trust and held in the hall of the Royal Society of Arts on Monday. The chairman was Mr. A. R. Powys. The lecturer said he had been very glad to hear that there was a desire to protect the windmills of England. The president of the Dutch Windmill Society thought that the movement should be organised, at least in part, along international lines. They in Holland felt very strongly that their aim should be to secure a legitimate place in the sun for their windmills, but they did not like turning eternally towards the past to admire its sterile beauties. A campaign well begun and well followed up would before long bring many people to admire and love windmill beauty who had not seen it with their mind's eye before. So it had been in Holland; and this, again, led millowners to consider the beauty of their windmills and make sacrifices for their upkeep. For 40 or 50 years the windmills had been disappearing from Holland, and the process was hastened when electricity came into the field. But windmill beauty did not depend on rarity or uniqueness as did the beauty of ancient buildings; the more windmills were together, the prettier the sight. Again, a windmill ought to be turning, at least sometimes. Intuition told them that it must surely be possible, in these days of scarcity of raw material, to use windcraft economically.

In the first year of the Society's existence it therefore held a competition for the best idea to improve the existing windmills, and a great many answers were submitted. The Society had worked principally by offering advice to millers and polders about the best way to use the wind. It had also bought seven windmills, only one of which was not in use. Mr. Jan den Tex showed slides of four of these mills belonging to his Society. One, which was acquired only three weeks ago, was shown on the screen in a 17th century painting by Ruysdael. In conclusion the lecturer advised the preservation of British windmills as a kind. They were beautiful and useful. Before long, when batteries had become cheaper, we should learn how to make electricity with them. There was but one step from the most ancient to the most modern ideas.

Women (called "Rejas") beating Lime-Terraced Roof.

WATER FOR DOMESTIC USE

In the recent case, Manchester Corporation *v.* Buttle (1929, 2 Ch. 390), a judge of the Chancery Division had to decide whether the Corporation was bound to supply a dentist with water at the rate chargeable for domestic use. This is a question constantly recurring, and the difficulty is occasioned by lack of uniformity in the statutory provisions under which the supply has to be made. In this case the question turned on the construction of two private Acts under which the Corporation undertook the supply—the Manchester Corporation Waterworks Act, 1847, and a later Act of 1869. Under section 93 of the former Act it was provided that the Corporation should, at the request of the owner or occupier, furnish to every occupier of a private dwelling-house or part of a dwelling-house within 50 yards of a main or other water-pipe a sufficient supply of water for the domestic use of such occupier at a rate per cent. per annum not exceeding £5 upon the annual rack rent or value of the premises.

Section 96 gave the Corporation powers to supply water for other purposes at such rent and upon such terms as should be agreed upon. Complication appears to arise in connection with section 111, which enabled two classes of rate to be levied once in every year, one to be called "the domestic water rate," to be levied upon the occupiers of all dwelling-houses and shops and buildings used as dwelling-houses, and another to be called the "public water rate," to be levied upon the owners of all dwelling-houses, shops, warehouses, counting-houses, coach-houses, stables, cellars, vaults, buildings, workshops, mills, and manufactories, etc., but this case appears to have turned mainly upon section 93 and the amending section 16 in the Act of 1869, which provided that no person should be entitled to require, nor should the Corporation be bound to supply, any dwelling-house with water (otherwise than by meter or by special agreement) where any part of such dwelling-house was used for any trade or business purpose.

In this case the Corporation had offered to supply water to the defendant, who carried on his profession as a dentist at his residence, on payment of a sum per annum inclusive of the "domestic water rate" and the "public water rate," and a further sum of 12s. 6d. in respect of water used for his dentist's chair, but the defendant had refused to pay this latter charge.

The Court intimated that had the Corporation had to rely upon section 93 of the Act of 1847 alone, on the authority of Metropolitan Water Board *v.* Avory (1914, A.C. 118), the declaration sought in this action that the water was used for other than domestic purposes could not have been granted. That means, had the Court to decide that the water was put to domestic use and the user of the water alone had to be regarded, then on the affinity of that case and Colley's Patents, Ltd., *v.* Metropolitan Water Board (1912, A.C. 24), the Corporation would not have succeeded. In the first of the above cases the water was used in a public-house for cooking the food of customers and washing up the dishes, and this was held a domestic use, whilst in the second, water supplied to a factory and used by the men employed for drinking and washing purposes and in the urinals and closets was held put to a domestic use. It seems a little step farther to hold that water used in the painful processes of dentistry is a domestic use, but this point was not actually material in the case we are considering, because in the second Act of 1869 it was specifically provided that no person should be entitled to require, nor should the Corporation be bound to supply any dwelling-house with, water (otherwise than by meter or by special arrangement) where any part of such dwelling-house was used for any trade or business purpose; and it was held in Oddenino *v.* Metropolitan Water Board (1914, 2 Ch. 734) under such a section that then not the user the water is put to is what has to be regarded, but the character of the house or building. The Court held that the house was used in part as a dwelling-house and in part for business purposes, relying on the case of Smith *v.* Anderson (15 Ch. Div. 247) for the proposition that the expression "trade or business" included premises used for professional purposes, and gave judgment in favour of the Corporation.

Water is supplied in so many cases under private Acts which vary in their terms that care has to be exercised in applying a decision given in one case to other cases. Thus, under the Bognor Water Act it was provided that the water company could not be compelled to furnish a supply otherwise than by agreement where any part of a dwelling-house was used "for any trade manufacture or business for which water is required," and it was held that the keeping of a boarding-school was not carrying on a business within the meaning of that provision. This was decided in Frederick *v.* Bognor Water Co. (1909, 1 Ch. 149), a case which was distinguished in Oddenino *v.* Metropolitan Water Board. This was a decision which probably was appreciated more by the boarders than by their parents, but it illustrates the importance of observing the express wording of each Act.

The Report of the Legislation Sub-Committee of the Advisory Committee on Water referred to this question of the diversity of private legislation, and with a view to securing uniformity, amendments in the Waterworks Clauses Acts, 1847 and 1863 were suggested which should be incorporated in every special or private Act. In the Waterworks Clauses Act, 1863, it is enacted "a supply of water for domestic purposes shall not include a supply of water for cattle or for horses or for washing carriages where such horses or carriages are kept for sale or hire, or by a common carrier, or a supply for any trade, manufacture, or business, or for watering gardens or for fountains, or for any ornamental purpose." The sub-committee proposed for this definition by exclusion to substitute a positive definition which will be found in section 14 of Appendix *A* to the report: "A supply of water for domestic purposes shall mean a sufficient supply of water to any dwelling-house or part of a dwelling-house for ordinary domestic use including baths not exceeding the prescribed number of gallons and water-closets but shall not include a supply of water for any other purpose." It is to be noted that this definition by itself would leave open the very questions we have indicated in the cases cited above, the supply of water to inns and boarding-houses, and the question of water for the dentist's chair, as it begs the question as to what is "domestic use." The report, however, recognised those cases under the title "*Quasi* domestic supplies," and pointed out that sixty years of special Act legislation had left a general lack of uniformity among the various undertakings and suggested a further clause based on the special Act precedents representing the scope which in the opinion of the sub-committee should be given to those supplies which the undertakers are under obligation to furnish but for which they have the option of charging by meter. That clause (16) is as follows:—"The undertakers shall not be bound to supply with water otherwise than by meter (*a*) any building used by an occupier as a dwelling-house whereof any part is used by the same occupier for any trade or manufacturing purpose for which water is required; (*b*) any of the following whether public or private, viz., any poor-law institution, hospital, asylum, school or sanatorium; or (*c*) any other institution whether public or private which is habitually occupied by 12 or more persons; (*d*) any boarding-house capable of accommodating at least 12 persons; or (*e*) any common lodging-house; or (*f*) any club, hotel, public-house, inn, restaurant, or any hydropathic establishment. (11) The undertakers shall be required to supply, but shall not be bound to supply otherwise than by meter, water required for any factory or other premises used solely for trade for the personal use for sanitary purposes of the persons employed therein. Water for sanitary purposes shall mean water used for drinking purposes and personal hygiene and water required for the flushing of urinals and water-closets and shall not include water used for any other purposes." There are other paragraphs in the clause not material to our present subject, except one relating to water used in refrigerating apparatus which has to be supplied by meter or under arrangement.

It will be seen that if the suggested clauses were adopted to be incorporated in every special Act of Parliament through the Waterworks Clauses Acts much would be done to clear the air and avoid litigation, but we venture to suggest that paragraph (*a*) of clause 16 requires some amendment in the light of the cases we have referred to above. It is clear that as that paragraph stands it would not cover the decision given in Oddenino *v.* Metropolitan Water Board enabling the character of the house or building with its use and occupation only to be considered, but that it would have to be construed on the principle laid down in Frederick *v.* Bognor Water Company as "limited to any trade or manufacturing purpose for a process in which the water is used in that trade or process as essential to that process," and that is to revive the questions involved in cases on that point.

In one other respect the clause also may raise legal questions in that it omits the word "business" and speaks only of "trade or manufacturing process." The water used for a professional purpose in Manchester Corporation *v.* Buttle, the case we have been considering, was held not to be a domestic supply because of the interpretation placed upon the word "business." The words "trade or business" have had to be construed in numerous Acts of Parliament, the latest example of which is the Landlord and Tenant Act, 1927. There, in section 17, the holdings to which Part I of the Act are to apply, are premises used wholly or partly for carrying on thereat "any trade or business," but in order to exclude professions it was necessary to say in sub-section (3): "For the purposes of this section premises shall not be deemed to be premises used for carrying on thereat a trade or business by reason of their being used for the purposes of carrying on thereat any profession," but again in order that the professional classes should benefit by the provisions as to improvements it was necessary to state that premises used for carrying on a profession should be deemed to be premises used for carrying on a trade or business in respect of those provisions. In course of time this expression "trade or business" will become the subject of further judicial interpretation, and therefore there is much to be gained by retaining the expression unaltered in the proposed clause as regards water supply. In the case we are considering it has already been interpreted in this connection as including the water supplied to a dentist at his residence, and thus the suggestion we venture to make as regards this clause is that it should follow the section interpreted in Oddenino *v.* Metropolitan Water Board and Manchester Corporation *v.* Buttle, and embrace the decisions in those cases, and read: "Any building used by an occupier as a dwelling-house whereof any part is used by the same occupier for any trade, business or manufacturing purpose," that is, that it should be amended first by the insertion of the word "business" and then by the omission of the words "for which water is required." We think we have shown the advantages which accrue from only having to consider the character of the house and not the purpose for which the water is used, and the omission of these latter words is directed to attain that object and to bring the clause into line with the above two decisions.

SURFACE TREATMENTS FOR PRE-CAST CONCRETE

So many builders are now interested in the manufacture of pre-cast concrete, either in the form of dressings for buildings they are erecting or the mass-production of blocks, slabs, garden ornaments, etc., as a side-line to their other activities, that some notes on the difficult problem of surface treatment should be valuable.

Among the methods of treating the surface of pre-cast concrete and cast stone are the following:—

(1) Tooling.
(2) Rubbing and polishing.
(3) Carving.
(4) Reeded or ribbed surfaces.
(5) White and coloured cement rendering.
(6) Exposed aggregate.
(7) Coloured concrete.
(8) Coloured cement washes.
(9) Painting and staining.

While any of these methods may be used for any class of work, each has its particular advantages for different purposes, and the cost is less in some instances than others.

Tooling is a method of finishing stone that has been in use almost since stone was used for building; it is thoroughly understood by the architect, builder and stonemason; it needs no special tools or knowledge that are not the stock-in-trade of the skilled mason. It may be applied to whole walls, or to small ornamental pieces. The method is practically the same whether the tooling is applied to natural or cast stone.

When the surface of the stone is to be chiselled the aggregate should be crushed to a maximum size of ½-in. or ¼-in., with the dust removed. If larger aggregate is used the pieces are liable to be chipped out from the face by the chisel, leaving unsightly "pock-marks." In this class of work the stone is invariably specified to match a natural stone, and is known as "cast Portland stone," "cast granite," etc. In such cases the natural stone to be matched must generally be used as aggregate. Exceptions occur when a sand of suitable colour is obtainable which may be used; for instance, Leighton Buzzard sand results in a good match for Portland stone; red, brown and yellow sands may be used to match different coloured stones; white silica sand will result in a concrete to match granite, and so on. Both when crushed stone or sand is used as aggregate the cement must generally be coloured to the same shade as the aggregate. For all the lighter shades of stone it is necessary to use white Portland cement; obviously white or nearly white stone cannot be produced if one of the ingredients is grey in colour.

For certain of the darker shades of stone ordinary grey Portland cement is suitable; it is useful to note that the product of one cement factory is often lighter than that from another works, so that the cement manufacturers can often help by supplying a light shade of cement if they are asked to do so. Costs may also be kept down by mixing white and ordinary Portland cements when pure white is not necessary. A proportion of hydrated lime added to the mix also lightens the shade, but it must be remembered that lime is a diluent which adds nothing to the strength of the concrete. An excess of lime will have a weakening effect, and it is not advisable to use lime in excess of 10 per cent. of the cement content.

Due to the fineness of the aggregate a fairly rich mix is necessary to ensure adequate strength and resistance to weather; usually a mix in the proportion of 1 part of Portland cement to 3 parts aggregate is used. A richer mix is to be avoided because it is liable to crazing, besides being unnecessarily expensive. Colouring matter must be added sparingly, because it is a very finely ground inert material which, if added in excess, will weaken the concrete.

The materials are mixed and placed in the usual way. Thorough grading is essential; this will ensure a dense surface, which will allow the chisel to work freely and leave a surface of uniform texture. Before tooling, the concrete must be thoroughly hard; "green" concrete will drag under the chisel. Hammer-dressed surfaces are obtained in exactly the same way as with natural stone. When stones are tooled or hammer-dressed, the film of cement is removed from the surface, and the liability to hair-checks, or crazing, is reduced.

As a rule, it is usual to use natural-stone aggregates for the face of the product only, using ordinary ballast concrete for the backing, or core. If, as is usually the case, the stone for the surfacing is crushed to pass a ½-in. ring or less, the facing is generally from ¾ in. to 1½ in. thick; it is often difficult to gauge the exact depth of the face as it is placed, so it is desirable to work to a minimum of ¾ in. It is better to have the face thicker than necessary rather than thinner, because excessively thin facings are liable to flake off when exposed to extremes of weather conditions due to the richer mix having a different rate of contraction and expansion than the backing, or core. The proportions of the core concrete depend upon the purpose for which the stone is required, and its shape. For most purposes a 1 : 2 : 4 or 1 : 1½ : 3 mix, with aggregate from ½-in. down, is suitable.

In the case of pre-cast articles that can be cast face down the facing is formed by placing a layer of the face mixture at the bottom of the mould and then placing the backing of ordinary concrete. When the articles are made face up, the backing is first poured and tamped to within ¾ in. or 1 in. of the top of the mould, and the facing then poured and screeded off level.

Whichever method is used, care must be taken to ensure that the second concrete is poured before the first has set, in order to secure a thorough bond. When the first material has been placed and rammed, the upper surface should be roughened, if necessary, in order to ensure a good bond to the second concrete. If the work is done face down, care must be taken that the backing is not forced through the facing mixture when tamped. If there is any considerable interval between the pouring of the two concretes, that poured first should be coated with a wash of neat cement to ensure good adhesion.

If after it is released from the mould the stone is found to contain small holes due to the presence of water or air pockets in the concrete, these holes and other irregularities are filled after the casting is taken from the moulds with a mix similar to that used for the stone. This is applied with a trowel or metal float, and smoothed off. At the same time any irregularities in the arrises are made good. If such filling is done the stone must be allowed to mature for a longer period before tooling or hammering, as the filling might be disturbed if tooled before it is thoroughly hard.

Rubbed Surfaces.

Most cast stone for architectural purposes is finished to a smooth surface by rubbing. After filling any small surface holes or making good the arrises, if necessary, the stone is vigorously rubbed, either by hand or machine, with carborundum bricks, York stone, red Mansfield stone, snakestone, or similar hard stone.

The quickest method is to use a coarse grade carborundum brick for the first rub followed by a finer grade. If a particularly smooth or semi-polished finish is required, snakestone may be used for the final rub. Plenty of water must be used during the rubbing process and the cement paste that works up removed with a brush as it appears, clean water being used when the rubbing is continued. The rubbing should be done as soon as possible after the stone is released from the mould. The period will vary according to weather conditions, being longer in cold weather than in summer; the type of cement used will also have an effect on this period. In order to keep the amount of work entailed to a minimum it should be done as soon as the stone can be rubbed without disturbing, or "tearing," its face. The harder the stone becomes the more the labour necessary to rub its face smooth.

Carborundum blocks are made to special shapes for the purpose. Machines are also available for polishing concrete surfaces. These are usually electrically driven and are fitted with carborundum wheels that rotate at high speed; they may be obtained arranged for operating on a stone on a bench or on the floor, and either in a downward or sideways direction.

It is often almost impossible to produce stones without small holes in the surface. There are then two methods of obtaining a presentable surface: (1) by grinding the surface to below the depth of the deepest of these holes, and (2) by filling in the holes with a mortar consisting of the same materials as the stone and smoothing over these patches. Provided the holes in the face are not too deep, and with a little care in placing the concrete, this can be avoided, there is no need for filling if the stone is to be tooled, as the tool will remove the surface slightly below the holes so that a new face is exposed.

If a rubbed surface is required it would be too lengthy a process to grind the surface to below the "blow-holes," and it is therefore usual to fill these with a mortar of stone crushed to ⅛ in. and down (or finer if necessary) in the proportion of one part of cement to 2½ parts of stone dust. This mortar is usually brushed over the whole of the face of the stone as well as being filled into the holes, and the whole of the stone rubbed down at the same time, thereby avoiding a patchy appearance, which might result if the holes were filled only and the remainder of the stone left as it came from the mould. If this method is used it is desirable to avoid anything approaching a thick coat of mortar on the face of the stone. If this is done the result is in effect a rendering, which is liable to flake off, and which will also be particularly liable to the crazing, or hair-checking, which so often results when these renderings are applied. The aim should be to rub the mortar into the stone, so that the finished result will be a stone finish and not a veneer.

Exposed Aggregate.

The principle of this method of concrete surfacing is to remove from the surface the film of cement with which each particle of the aggregate is coated, and to use an aggregate or combination of aggregates which will have a pleasing and attractive appearance when thus exposed. The first essential is to select a suitable aggregate, remembering it is the aggregate that will show on the surface. In exposed aggregate work there is no limit to size of aggregate that may be used, because the surface is not worked with tools or rubbed.

From the use of white sand or crushed white stone and white cement to obtain a pure white surface, to black marble chippings and cement coloured black for a black finish, practically any shade, either monotone or different shades in one unit, may be obtained. For darker or more unusual shades chippings of various natural stones and marbles are used.

The method described hereafter of exposing aggregate is also useful for obtaining cheaply a surface resembling hammer-dressing, particularly in the case of granite. The depth to which the aggregate is exposed may be varied to suit the effect desired. To obtain a representation of hammer-dressed granite the depth of exposure would be very slight—just sufficient to give a roughened surface. For other purposes, however, a deeper exposure may be desirable.

Care must be taken that the cement is not removed to too great a depth or the aggregate will be easily chipped or rubbed off. For instance, if the aggregate is ½ in. and the cement is removed to a depth of ¼ in. the aggregate will be fixed for a depth of ¼ in. only while the projection is ¼ in. If the aggregate is not all cubical all the particles will obviously not have a depth of ½ in., as some of them will lie flat with the face of the concrete, and these will fall away. As it is desirable that as little as possible of the cement should show, the material should be as well graded as possible.

Special aggregates may be used for the face of the product only, using ordinary ballast concrete for the backing on the principle already described. In the face-up process, if the surface is smoothed with a trowel care should be taken to press back any aggregate which may become dislodged in order to ensure a thorough bond. It will be found better to use a roller rather than a trowel for this purpose.

When it is essential that the larger particles of aggregate shall appear on the surface it is preferable to make the stone with the face uppermost, so that the large aggregate may be placed and pressed or rolled in position. The face-up process is also to be preferred if coloured aggregates are used to form a pattern, carefully placing and rolling or pressing the pieces in position. If the products are to be made with the face at the bottom of the mould, and a pattern is required on the face, the pieces of aggregate to form the pattern must be placed in the desired position and the remainder of the concrete carefully placed so as not to disturb the pattern.

A useful method of securing a pattern in position in the bottom of the mould while the remainder of the concrete is placed is to use glue or shellac to hold the pattern in position. The method is to place a piece of thin cardboard in the bottom of the mould and give it a coat of thin glue. On this the larger pieces of aggregate are placed, the finer material sprinkled between them to fill the interstices, and then left for an hour or so for the glue to harden. A thin cement wash is then brushed over the back of this facing, so that the remainder of the concrete may be poured and tamped without fear of dislodging the face. The moisture from the backing will probably be sufficient to moisten the glue, or the cardboard may be readily soaked off when the stone is taken from the mould.

In this method the question of further surface treatment does not arise, as there will be no cement to remove. When no special pattern is desired, it is quicker in using this method to dip the glued face plate or sheet of cardboard first in the coarse aggregate and then in the fine aggregate, which will adhere to the glue.

Unless some such measure as the use of glue on the face plate is adopted, in exposed-aggregate treatment it is necessary to remove the cement from the surface of the product. Obviously, the sooner this is done the easier it will be, as the longer the period between the casting of the product and the removal of the cement the harder the latter will have become. For this reason it is better to cast the products face-up, or on their side, so that the face can be worked on before the product is hard enough to remove from its pallet. The treatment may, in such cases, be carried out while the product is still in its mould.

The simplest way to remove the film of cement from concrete cast face-up would be to spray the surface with clean water immediately after the pressure has been applied and before the cement has begun to harden, but this is impossible, because at this stage the water would wash the aggregate away as well as the cement. When the concrete is a little older, however, this can sometimes be done, but careful judgment is necessary to avoid too early application. The danger of disturbing the surface aggregate is considerable, and it is better to wait until the concrete has hardened to a degree when more vigorous but safer methods are necessary. At this stage, water sprayed under pressure may be effective, or the use of a scrubbing brush and plenty of clean water.

The best age at which to apply the scrubbing process can only be judged in each case, as many factors, such as the temperature, the nature of the cement, and the consistency of the concrete, will affect the hardness of the concrete within a few hours after it has been placed. The best time to use the brush is, of course, as soon as the surface can be scrubbed without dragging the aggregate as well as removing the cement. The deeper the aggregate is to be exposed the earlier the scrubbing must be carried out.

If the cement is allowed to harden thoroughly it will be found impossible to remove the cement by scrubbing with water. It is unwise to delay the operation for so long, but in cases where it cannot be avoided and the cement has set hard, the best treatment is scrubbing with a solution of muriatic acid (commercial hydrochloric acid). The strength of the solution should not exceed 1 part of muriatic acid to 3 parts of water, and if weaker solutions will be effective they should be used. It is best to try a weaker solution, say 1 part acid to 8 parts water, and strengthen it, if necessary, until it is effective within a reasonable time.

If muriatic acid is used it is essential to remove all traces of it immediately the desired object has been achieved, as if the acid is left on it will result in staining, and also continue its action on the cement between the surface aggregate, with the result that the surface will be liable to disintegrate. The best way to remove the acid is to wash the face of the product with copious applications of clean water.

For statuary, garden ornaments, or other products of which all the surfaces are exposed to view, and the shape of which makes scrubbing difficult or impossible, it may be more economical to prepare a bath of muriatic acid solution, in the proportion already mentioned, in which the products may be immersed. In a fairly strong bath, say 1 part of muriatic acid to 4 parts of water, it will be found that the aggregate will commence to show after an immersion of two minutes or so. If the film of cement happens to be thicker in one part than another, and as a result one part is sufficiently etched before the remainder, the product should be removed from the bath and the remainder scrubbed off separately. Prolonged contact with muriatic acid solution with the skin may become painful, and if men are constantly engaged in this work it is advisable for them to wear rubber gloves.

Polishing.

A fairly good polish on concrete surfaces may be obtained by rubbing with carborundum stones, using fine-grained carborundum for the final rubbing. It must be remembered that cement cannot be rubbed to a polished or glazed finish, and that therefore as little cement as possible should appear on the surface. Also, a concrete surface cannot be given any greater degree of polish than can the stone used as aggregate. For this reason a hard fine grained stone should be used as aggregate. Marble, granite, or other stones which can be polished in their natural state therefore form the best aggregates for concrete that is to be polished. This will be realised by considering terrazzo floors, which, of course, consist simply of concrete made with marble chippings and cement rubbed to a smooth face.

The best results are obtained with a mix of 1 part Portland cement to 2½ or 3 parts of the aggregate selected, and an effort should be made to produce a face containing a maximum of aggregate and a minimum of cement. This can be done by careful grading, using, say, 10 per cent. of dust. The aggregate should be small, in order to avoid excessive cost in rubbing down; for most purposes ¼ in. is large enough, and it should not exceed ½ in. In placing the concrete, care must be taken thoroughly to compact it in the bottom of the mould if the stone is made face down, in order to produce a face as smooth as possible.

If the stones can be made face up, as, for example, stair treads, floor tiles, etc., it is better to use a roller to obtain a smooth face. If the slab is not too large, the roller should run on the sides of the mould. If the top of the stone or slab is rolled in this way, three advantages will be obtained—(1) a perfectly level and smooth face that will need the least amount of rubbing; (2) the roller will push the aggregate down into position, and avoid the danger of "dragging" when a screed is used; (3) excess water will be squeezed out, and can be rolled or pushed off the face, thus getting rid of some of the cement that would otherwise harden on the face and have to be rubbed off.

As soon as the slabs or stones are sufficiently hard (usually about three days after manufacture), they are rubbed with coarse carborundum blocks, followed by fine carborundum, and finally with snakestone or other smooth stone. Several hours' rubbing is necessary to get a good polish, keeping the surface well watered during the operation. A sprinkling of silver sand on the wet stone helps the grinding action of the carborundum blocks. The labour cost of rubbing may be reduced by the use of electrically driven polishing machines.

By the method described, a good polish is produced, providing the stone used for the aggregate is itself polishable. The polish may be further enhanced by the use of ordinary floor polishes after the concrete has thoroughly dried out. A good recipe for such a polish is one pint of boiled linseed oil, one pint of turpentine, ½ pint of vinegar, ¼ ounce of butter of antimony. This should be well rubbed on to the surface and polished with a soft dry cloth.

Although, as already stated, cement cannot be polished by rubbing, it can be brought to a degree of polish resembling a glazed earthenware tile by other means. There are several patents for producing a cold glaze on cement, but they are of Continental origin and not operated in this country at the time of writing. The usual method of producing a polished cement surface is to mould the articles (usually tiles for walls, floors, fireplaces, etc.) on a polished steel or plate-glass face-plate. It is necessary to use a plastic concrete, so that the water will carry a film of cement to the bottom of the mould, and a fine aggregate, say, ¼ in. down with 10 per cent. of dust, is necessary. Before placing the concrete in the mould, the face-plate should be smeared with petroleum jelly to prevent adhesion. When placing the concrete, it should be well stirred in order to allow air and water bubbles to escape and avoid unsightly pitting on the face. For the same reason, vibration is desirable, obtained either mechanically or by tapping the mould; this will cause fine material and cement to sink to the bottom of the mould, against the face-plate; it will help to disperse air and water pockets, and to produce maximum density. If properly oiled glass face-plates will come away quite easily without breaking when the mould is stripped. By this process a polished cement surface is produced, which may be further polished by ordinary furniture polish as already described. In this process it is a facing of cement only that is polished, so that the nature of the aggregate has no effect on the result.

Another method, but not so effective, is to make the tiles face up and use a steel trowel to bring the cement to the surface; two or three rapid strokes with the trowel are all that is necessary, sprinkling a little water on the top if the material is inclined to be harsh. When either of these methods of polishing is adopted the cement may be coloured if desired. Also, the special aggregates or coloured cement may be used for facing only. The author has seen some very effective tiles polished in this way and in which mother-of-pearl has been incorporated in the concrete. The silicate of soda hardening process also produces a slight glaze on concrete.

Graining.

A fair match of marble may be obtained on concrete. This is specialist work for which considerable experience is necessary in order to produce good results. One method is to use a plate-glass or polished-steel face-plate at the bottom of the mould, on which the desired grain is painted in mineral colours. The concrete is carefully placed on the painted glass while the paint is still wet, so that the colour is transferred on to the surface of the concrete, into which it penetrates. The use of a smooth face-plate ensures a smooth surface to the concrete with a certain degree of polish, and also prevents any of the colour being wasted by sinking into the plate as would hapen if wood were used.

To reproduce marble with a streaky grain, pieces of string soaked in colour may be laid on the glass face-plate. The colour is absorbed by the concrete in streaks according to the position of the string; it also spreads laterally from the string, resulting in streaks with the greatest intensity of colour in their centre and gradually fading on each side.

Only fine crushed marble and cement should be used in this process, at any rate for the face, and the cement should be coloured the same colour as the marble. Graining and marbling may also be painted on the surface of the concrete after it has hardened, using ordinary concrete paints.

Surfacing Plastic Concrete.

An inexpensive method of surface treatment is to mark, comb or "drag" the surface as soon as possible after the concrete has been moulded. This, of course, is only possible with products made face up, and for which a fine aggregate is used. Any tool or strong comb that will produce the desired marking may be used, or one can readily be made.

In this treatment, which is mostly used to give a ribbed or reeded effect, the surface should not consist of anything coarser than $\frac{1}{16}$ in. sand and cement, and the mix should be fairly rich (say 1 : 2 or 1 : 3) in order to obtain a "fat" surface that will lend itself to the treatment. If desired, a proportion of hydrated lime up to 10 per cent. of the weight of cement may be added to ensure easy working.

Mosaic Patterns.

Cement decorative panels in colours may be made as follows: First, make a slab of the desired thickness in cement of the colour that is to form the back-ground, fixing blocking-pieces in the bottom of the mould to allow the pattern to be inserted. Care must be taken to taper these blocking-pieces so that they can be easily removed. When this slab has hardened it is released from the mould, turned over, and the spaces filled with different coloured cements in accordance with the design. When different colours are in juxtaposition to each other, that placed first must be allowed to dry out before the next is placed in order to avoid the colours running into each other. If desired, the articles in which mosaic patterns are to be inlaid may be made face-up, pressing blocking-pieces into the face to the desired depth and, when these are removed, filling the space or spaces with coloured concrete. If desired, the mosaic pattern may be pre-cast in separate pieces and grouted into the spaces blocked out for it. For stair treads or landings to be faced with a mosaic pattern, pieces of carborundum, alundum, or other non-slip materials may be used for the inlay.

Painting with Cement.

The art of painting with coloured cement has been considerably developed during recent years, and some excellent pictures produced. One advantage of painting with cement is that the artist is not limited to two dimensions only, as a raised pattern may also be incorporated in the picture. Thus a portrait in coloured cement may also be in relief. In this branch of the painters' craft, the artist has a range of coloured cements and modellers' tools in addition to brushes. The coloured cements are mixed to a stiff consistency and applied with brush or spatula, taking care that the colours do not run into one another if this is not desired. This class of work is, of course, outside the scope of the pre-cast concrete worke, but it has many interesting possibilities for outdoor permanent decoration in colour and relief and for mural decoration.

The process is, however, used to some extent by cast concrete manufacturers, particularly in the production of garden ornaments. It is, of course, impossible to use different shades of colour in the concrete used for such purposes, with the result that garden statuary and suchlike articles are monochrome when they leave the moulds. Their appearance may, however, be enhanced when desired by the application of delicate shades of mineral oxides and pigments, and some very pleasant tinting and shading may be introduced by this means. For example, the appearance of depth of incised parts may be emphasised by the application of black or dark grey, or the whole figure may be treated in the different shades of the same colour. A simple method of carrying out this work is to rub the colours well into the figure with the fingers, or a small spray may be used. If the ornament thus treated contains pit-holes when taken from the mould, these can, of course, be filled in while the concrete is being tinted with coloured oxides or pigments. Some particularly attractive tinted surfaces suitable for garden ornaments are obtainable in this way.

Painting on Concrete.

Special paints are on the market for use on concrete, but any good oil paint will produce satisfactory results. Paint must not be used directly on the concrete, or the lime in the cement will affect it. After the concrete has hardened, it should be thoroughly washed over with three copious applications of a 40 per cent. solution of zinc sulphate; this will prevent the lime affecting the colour, and paint may then be used in the ordinary way.

Creosote may also be used on concrete, and may, of course, be obtained in a variety of colours and shades. This is a cheap method of tinting concrete surfaces, and has been used successfully on fence-posts and other products when they are desired to tone with their surroundings.

Sand Finishes.

A simple method of obtaining a sand-face finish, when the products are made face-up, is to sprinkle sand on the surface while the concrete is still green. To ensure even distribution, the sand should be mixed with equal parts of Portland cement and shaken on through a fine sieve. The sand may be fine or coarse as desired. This treatment is not suitable for products that are to be subjected to wear, but is cheap, satisfactory, and lasting for other purposes, such as wall panels. Panel effects may be obtained by using a stencil and dusting on different-coloured sands to form a pattern.

Non-Slip Surfaces.

Non-slip surfaces, such as are used for steps, landings, etc., are obtained by the use of carborundum powder, which is either mixed with the top layer of concrete, or sprinkled on the wet surface and pressed into the concrete. If the carborundum powder is mixed with the top layer, usually $\frac{1}{2}$ in. or $\frac{3}{4}$ in. thick, a useful formula for ascertaining the amount of carborundum required is to use $\frac{1}{4}$ lb. of powder per $\frac{1}{4}$ in. thickness of topping per yard super. Thus if the topping is $\frac{3}{4}$ in. thick, $\frac{3}{4}$ lb. of carborundum powder per square yard will be required; if the topping is to be $\frac{1}{2}$ in., $\frac{1}{2}$ lb. of powder per square yard will be necessary.

When the carborundum is to be sprinkled on the surface and pressed in it should be applied before the concrete hardens, but after it has stood long enough for the surface to be fairly firm. The powder is first mixed with Portland cement in about equal proportions (to ensure equal distribution), and sprinkled over the surface through a fine sieve. From 1½ lb. to 2½ lb. of powder are used per square yard, according to the degree of non-slipperiness required. Care must be taken not to press the powder below the surface when pressing it in.

Grooves or other indentations in the surface of the concrete are also used to present a good foothold. These are obtained in their simplest form by "combing" or dragging the face of the concrete before it has hardened; by the insertion of strips of wood or metal in the bottom of mould; by marking the concrete by pressing a strip of wood into the surface if it is made face-up; or by the use of a special face-plate in the bottom of the mould to give an incised pattern on the step or landing.

A roughened non-slip surface may also be readily obtained by the insertion of a piece of coarse canvas in the bottom of the mould. A piece of crepe rubber used in the same way is also effective, and has the advantage that it can be used many times over.

Colour Washes.

Coloured cement washes are made by mixing pigments (usually metallic oxides) with Portland cement and water to form a thin mortar, or wash, and this is applied to the surface of the concrete in the same way as an ordinary limewash—the process, and the results, are practically the same as limewashing.

To obtain a white surface, white Portland cement should be used, and white Portland cement should also be used as a basis for any of the lighter shades of colour. Thus white Portland cement with burnt umber or brown oxide of iron will produce cream, yellow and buff shades. In any case it is best to make trial panels, which can be lightened or darkened as desired by varying the quantity of colouring material. Coloured cements may also be used for making these washes.

The cement and colouring material should first be thoroughly mixed dry, and then slowly added to water and stirred vigorously until it has the consistency of oil paint. Only sufficient of the wash should be mixed with water to last one hour, but it is preferable, for the sake of a uniform result, to mix sufficient in the dry state for the whole of the work. Two or more coats should be given if necessary.

If the colour is applied as roughcast in which sand is used, the sand should be quite dry. The use of wet sand is liable to cause the cement to set in the "dry" mix. In very hot weather it is advisable to spray the surface with water each day for three days after the wash is applied, as if the wash dries too quickly it is liable to rub or dust off.

If the area to be covered is too large to complete with one mixing, an accurate record of the quantities of materials should be kept in order that there shall be no variation in colour with successive mixes. The addition of 4 per cent. of calcium chloride to the mixing water will ensure a thorough bond between the wash and the concrete, as the calcium chloride will attract moisture from the air and keep the wash damp until it has thoroughly set.

It must be remembered that the colour will be lighter when the wash is dry than when it is wet, so that if a colour is to be matched exactly, it is advisable to cover a small area, or separate panel, and leave it for a few days until it is thoroughly dry, in order to ascertain what the finished surface will be.

There are some precautions that must be strictly observed in the use of any pigment: the proportion of colouring material to Portland cement, for instance, should not exceed about 10 per cent., as larger proportions may affect the setting of the cement. Also, only mineral colours should be used, as organic pigments are generally unstable, and will fade when exposed to the sun, or they may be decomposed by chemical action.

The colour is supplied in the form of powder, and this is thoroughly mixed with the cement in its dry state, in order to ensure that it will be uniformly distributed throughout the concrete, the coloured cement being afterwards added to the aggregate and again thoroughly mixed before water is added. If colour mixing is carried on to any considerable extent, it will probably pay to instal a ball-mixer, which grinds the cement and colour together, and ensures very thorough distribution.

The cost of different colours varies considerably. Reds and browns such as are used for tiles are the cheapest, followed by black, yellow, buff and cream, at about 25 per cent. more than red. The most expensive colours are blue and dark green. The price of coloured cement also varies in about the same ratio, according to colour.

COUNTY COURT PRACTICE

This is the sixth edition of this little work,* the first edition having been published in 1901, so it is in a position to speak for itself; but for those who are not acquainted with it, we may say that its object, as set forth in the introduction, is to provide a simple guide to the county court practice to those who have small debts to recover, with which small business, according to the author, solicitors do not care to be troubled for the small fees recoverable or payable. Thus the author hopes that it will not injure the practices of his fellow solicitors, and it may even assist the younger members of his profession, whilst the general public, who at present allow small debts to remain unrecovered because of the trouble and obscurity involved in taking proceedings, will have to their hand a simple guide showing how those proceedings can be initiated and conducted so far as the practice of the courts is concerned. This point may perhaps be emphasised. The author deals only with the practice in the courts, not with points of law which may be involved, and he expressly states in the introduction that the work does not touch upon a single point of law; thus one of the great dangers attending placing law books in the hands of laymen is absent in this case, where only matters of procedure are explained—and explained in the simplest of terms. We do not set up to be experts in the practice in county courts, but, glancing through this little volume, we think the author has attained what he sets up as the object of his effort, that the reader may contemptuously remark: "Any boy could follow the practice with a baby book like that"; but the author, in his comments, expresses a good deal more than the wisdom of infants, as is shown by his very first observation relating to the first step to be taken—"Be sure and ascertain, before doing anything, that the defendant is in a position to pay if pressed."

An Architect's Estate.

Mr. Roger Bradley Barker (53), of Longwarren, Arnside, Westmorland, a Fellow of the Institute of British Architects, and once director of housing schemes for Plymouth and Wolverhampton Corporations, left £13,379.

* "County Court Practice Made Easy, or Debt Collection Simplified." By a Solicitor. Sixth Edition (rewritten). London: Effingham Wilson. 1929. 5s.

INSTITUTE OF CERTIFIED CARPENTERS

A DISCUSSION, in which most of those who took part were teachers in technical schools, took place on Saturday at a meeting of the Incorporated British Institute of Certified Carpenters, held at Carpenters' Hall, London, E.C. Mr. W. T. Sweett opened the discussion with the question, "What skill and knowledge are demanded of the carpenter and joiner, and to what extent are the technical schools meeting the demand?" Mr. Sweett said the craft enthusiast considered that skill was much more requisite than speed, but in practical work skill and speed were equally important. A man must have both, and restriction of time must not prevent the effective display of skill. The education given in technical schools must be considered as supplementary to workshop practice. How far did such education lead the man who was seeking promotion? Did a certificate help him to get a shilling or two more a week? Was the success of the candidate, from that point of view, anything like commensurate with the amount of time, money and effort expended in order to gain the certificate? The schools continued to teach hand work. There was a beauty in such work and a pleasure in doing it, but in these days of subdivision of labour and the use of machinery, the craftsman spent most of his time doing such work as knocking together doors and window sashes, and glueing them up. Technical education should, therefore, be brought up to date. For the purpose of considering how far technical education provided for the complete education of the craftsman, the progressive life of that craftsman might be divided into five periods: (1) apprentice; (2) operative; (3) setter-out and staircase hand; (4) foreman; and (5) superintendent. During the last ten years rapid progress had been made in manufacturing joinery works. These would take orders from builders, or anyone else, and prepare the work strictly under the factory system. Such works needed an organisation very different from that of the builder who ran his own shop under his own supervision, and various supervisory duties had to be delegated. The amount of attention given to woodworking machinery in the out-of-date text-books used in the technical schools was almost negligible; but, apart from this defect, the first three periods he had mentioned were amply provided for. So far as the foreman was concerned there was a difficulty, because the foreman should have an idea of the productive capacity of his works. He should know what could be done by each man individually and by all collectively, and he should know the productive capacity of his machines. Otherwise he would find it very difficult to deliver the goods to time, and also to control the work as regards cost. In the case of the superintendent there was still a greater difficulty. The superintendent was responsible for the amount of work he took on and, to a certain extent, for its price. He should be educated in estimating, costing, and such matters, so as to know what price a job could be taken on at, and know the capacity of his works.

The Secretary then read two letters. Mr. John Oakey wrote that the carpenter and joiner of the future would require greater skill as machinery advanced. The tendency of the machine was to produce more perfectly and speedily all classes of work in the mass. The man must work more quickly himself and finish off better than the machine. This meant a more scientific use of his tools and the picking up of his several tools as little as possible. Also, greater skill would be necessary in setting out before passing on to the machine. The craftsman's knowledge must be of a wider character: it should include the limitations of material, machines and hand-tools, the reading of drawings and setting out therefrom, with the speedier method of approach to the working up of the various jobs. In most cases technical schools made an honest endeavour to teach the skill required.

Mr. W. F. Lombard wrote that, as a lecturer on building construction, carpentry and joinery and geometry, he found that as each year came along the subjects seemed to become more complex and difficult to handle. Technical education became more scientific, and there would soon be few craftsmen teachers, for the knowledge required would be beyond the reach of most craftsmen unless the standard of education was rapidly raised. This brought another question: "Can one, however highly trained in theory, teach craftsmanship unless he is himself a craftsman?" For teaching craftsmanship, something deeper was required than for teaching a subject theoretically. Was this teaching likely to be forthcoming, or would all become machine followers? More skill and knowledge were demanded than ever.

In the general discussion that followed, Mr. E. C. Brockwell asked if carpenters and joiners were to look forward to a condition of things where one man would work a planing machine and another a circular saw? Engineering had reached that stage. A motor works was an example of mass-production. Systems had been worked out by studying movements so as to save fractions of a second of a worker's time on each operation. This sort of thing turned men into automata.

Mr. J. W. Large said the use of machines was taught in some schools, the course in some cases being almost as long as that for carpentry and joinery. For best-class work craftsmanship was indispensable. A lad should be taught to be skilled, taught to save time, should have some knowledge of machinery, and then could come instruction in quantities and costs.

Mr. Yarborough said teachers had to teach things for examination purposes that were of little use to the workman to-day. In modern construction, wood was sometimes used only as a covering for steel, and carpenters and joiners must learn to work in conjunction with the steel worker. Concrete must not be forgotten. As a teacher he had departed very largely from the text-books: the five teachers where he was employed were trying to get out a scheme which would be useful to men working on buildings to-day.

Mr. H. W. Grainger said that more could be done with the students if they remained until they were 21, but then they would not get business experience. Machine operations should not be taught in the school. The boy should be taught to appreciate good work and finish, and when he got out into the shop and found 75 per cent. of the work was done by machinery, he would not be any the less efficient because he had learned to use his hands.

Mr. Luxton said that if a young man had a good physique and common sense, observation would teach him enough to be a machine-minder. But on the job the fellow who had been to a technical school and learned to understand drawings and general principles had an advantage over the man who had not, and there was scope for him. The foreman in the shop could appreciate him. But technical education was not everything. For some jobs a man must look like a boss and talk like a boss.

Mr. G. Ayres said he had been a member of a committee studying syllabuses, and had found the difficulty in bringing these up to date was to know what to leave out. The experience of a man brought up in a workshop where mass-production was the rule was of little use elsewhere. The technical side of the craft was made too much of; if one had a young man educated up to the technical standard one could teach him in two sessions all that it was necessary for him to know. What the technical school had to do was first of all to make the lad a good carpenter and joiner, and then provide all the ancillary subjects that would enable him to go as far as he liked.

BUILDING IN INDIA

By "PACER."

In ordinary life a great deal of interest may be found in the study of the manners and customs of other nations, and this applies equally to the "art of the builder." Our artisans, architects and engineers have done much in the teaching of their calling to the people of other countries, but we have to remember that the Chinese, Egyptians and Indians had erected famous monuments before our forefathers had got beyond the stage of hewing caverns in the rocks, in which to shelter their families and guard their belongings. In dealing with India we may safely assume that the people who were capable of constructing the ancient and wonderful Temple of Madura, in Southern India, and also the more modern Taj Mahal, rightly placed as one of the wonders of the world, possessed some fair knowledge of the craft and its materials.

Most of the towns of any note in India have been built on the alluvial plains, which form 75 per cent. of the country, or at the mouths of her rivers. Reason for this is not far to seek, as, naturally, trade with outside countries would be attracted to places where shipping could be received in safety, and as the people of the country are mainly vegetarian they congregated in districts where plentiful crops could be most easily grown, namely, on the rich land formed by the deposit of river-borne silt. The climate of India is divided into two seasons, one from June to September which is exceptionally wet, and the other from October to May which is equally dry, and the conserving of the water supply throughout the long spell of dry weather is an absolute necessity. Before a family would ever think of building a dwelling, they would first proceed to excavate a pond or, as it is locally termed, a tank, thus ensuring that they had an adequate supply of water. Having completed this, they utilise the surplus soil from the excavation to provide the materials to build their walls. Amongst the coolie and agricultural classes, this method of procedure is followed to-day. In some cases a bamboo framework is embedded in the thickness of the wall to give added strength, and this may well be the inception of the idea of our modern reinforced concrete; the most usual method, however, is to mould the clay into rough blocks which are built in a similar manner to masonry.

Discovering the hardening effect of the sun's rays, the more advanced of the people were not long in reducing the size of the blocks and manufacturing what we now term sun-dried bricks, and from this it was an easy transition to assist the heat of the sun by means of wood fires, and thus form bricks almost as we know them to-day. The nature of the earth or clay with which the bricks are made naturally had a great bearing on the quality, but there are buildings standing to-day which are centuries old, in which those wood-fired bricks were used, and they are nearly as good now as when first built into the walls.

Following the improvement in the manufacture of the bricks came the advance in the method of cementing these together. In many districts of India there are numerous deposits of small clay nodules containing lime in fairly rich proportion. When these are burned they form a hydraulic lime called "ghooting," and this is used to-day in large quantities, even on the best of work. There is little doubt that the discovery of the properties of this material was the result of the accidental use of some of these nodules in the manufacture of the wood-fired bricks, which, being useless for the purpose of building, would be pounded to make mortar for the building.

In using these powdered bricks, they introduced the modern mixture for lime mortar as used to-day in India, the specification for which is: One part of slaked lime, one-and-a-half parts of sand, and one-and-a-half parts of "soorkie." "Soorkie" is the term applied to brick-dust throughout the country. The requisite quantities of lime, sand, and broken or slightly underburned bricks are measured out and thrown into a heavy roller mortar mill, and ground together until the bricks are thoroughly disintegrated and until the mortar to which the water has been added has become the proper consistency. This is found to make a much stronger mortar than the mixture of one part of lime to three parts of sand. So universal has the use of "soorkie" become in India, that makers of machinery for this country refer to their machines not as lime or pug mills, but "soorkie" mills. In small works, and in inaccessible places, the mortar is ground up in very simple manner. A trench is cut in the ground to an exact circle of about 20 ft. in diameter. This is lined with brickwork to form a groove about 12 in. wide and 8 in. to 10 in. deep. A heavy millstone is placed in it and dragged round and round by a bullock harnessed to a wooden pole passing through the stone as an axle and working on a centre-pin in the middle of the circle. The materials are put in the trench and are gradually ground down by the weight of the roller. In the sand-lime mortar the change that takes place is purely physical, but the change in the "soorkie" mortar appears to be more chemical in its nature, and it attains a hardness more akin to cement mortar.

When we consider that the bulk of India's bricks are made from thoroughly burnt alumina and silica, then with these powdered materials and the lime we have nearly the same constituents as in Portland cement, and it would appear that we are unconsciously making a poor kind of cement mortar having nature and setting action of a similar kind, but of less strength. The increase of strength, however, over ordinary lime-sand mortar is very marked, and in the demolition of brickwork built with "soorkie" mortar the bricks break more often than the joints, and it is extremely difficult to separate the mortar from the bricks should the latter be re-used.

The gigantic plains of north and middle India to a line as far south as Bombay to Calcutta have been formed by the silt deposited by the rivers Ganges and Indus and their respective tributaries. This silt originally comes from the Himalayan range of mountains, and as these rivers travel on their long journey of about 2,000 miles, the heavier particles are gradually deposited, and by the time half the journey is completed only the lighter materials remain, and these, in turn, are deposited where the rivers become more sluggish in passing through the plains. This is the cause of the great similarity of bricks throughout these districts.

The amount of sediment carried by those rivers is so great that the brick requirements of Calcutta, the second largest city in the British Empire, are met yearly by the deposits from the Hoogly alone. This river is tidal for a distance of about 50 miles above the city, that is, roughly, 200 miles from its mouth, and all the brickfields are situated on its banks for a distance of 30 miles above and below.

The method of working is rather ingenious. Originally pits are excavated along the banks of the river and its small tributaries, leaving just enough bank to prevent the river-water from entering the cuttings. Immediately before the "rains" start in the middle of June, portions of this protecting bank are cut away, and this allows the river-water to flow into the pits at each tide. During slack water the sediment settles, and this goes on throughout the rains when the water is at its flood levels. When the dry season comes on in October, the openings are filled up at the lowest available ebb tide, and the remaining water is pumped out. The sediment left dries up in a few days, and when sufficiently solid to cut it is taken out and heaped up to weather, and is then turned into bricks, and this process is carried on year after year. As much as 2 ft. 6 in. depth of silt will settle in a season, so the supply is never-ending. The workers in these brickfields are imported from up-country.

Old Zemindary House, built of wood-fired bricks (about 250 years old).

NEW BUILDINGS IN LONDON

The Editor would be glad to receive information for publication under this heading from architects, builders, or other persons concerned. Items should be received at THE BUILDER *office not later than Tuesday evening.*

Acton. — IMPROVEMENTS. — The Great Western Railway Co., are to construct a new marshalling yard. The scheme will involve an expenditure of £107,000. The plans are in the hands of the Chief Engineer, Paddington Station, W.2.

Acton. — CHURCH. — Messrs. Smee & Houchin, architects, Fleet House, 58, Fleet-street, E.C.4, have prepared plans for a new Wesleyan church and schools at the corner of Steele-road and Church-path.

Bayswater.—EXCHANGE.—To the plans prepared by the Architects' Department of H.M.O.W., Messrs. A. Roberts & Co., Ltd., of 74, Earl's Court-road, Kensington, W.8, have secured the contract for the erection of the Bayswater telephone exchange next to the Greek Cathedral, in Moscow-road.

Beckenham. — OFFICES. — New municipal offices are shortly to be erected by the U.D.C. The plans have been prepared by Messrs. Lanchester & Lodge, architects, 19, Bedford-square, W.C.1. The scheme is estimated to involve an expenditure of £83,000.

Beckenham.—CHURCH.—A scheme is to be put in hand for the erection of a new church and hall of St. Augustine's in the Churchfield district. The work is estimated to cost £15,000. Mr. G. Sworden Pavill, Raymond-buildings, Gray's Inn, W.C.1, is the architect.

Becontree.—PREMISES.—On a site at the junction of Gale street and Hedgman's-road, Messrs. Barclay, Perkins & Co., Ltd., brewers, of Park-street, S.E.1, are to erect new licensed premises. The plans are in the hands of the Company's surveyors.

Bexley Heath.—PREMISES.—Messrs. Lloyds Bank, Ltd., whose head offices are at Cornhill, E.C., are to erect branch premises at 1, Market-place. The plans have been prepared by Messrs. Searle & Searle, architects, Paternoster House, Paternoster-row, E.C.4. Messrs. Holliday & Greenwood, Ltd., 11, Buckingham Palace-gardens, S.W.1, are the contractors.

Camberwell. — BUILDING. — Mr. F. T. Verity, architect, 7, Sackville-street, W.1, submitted application to local council for the erection of a building on the north side of High-street, to abut upon Marmont-road and Stafford-street.

Croydon. — EXTENSIONS. — Following the approval by the Board of Education of the scheme and plans prepared by Messrs. Leathart & Granger, architects, 7, John-street, Adelphi, W.C.2, for the provision of a new Whitgift Grammar School, the governors have accepted the tender of Mr. E. H. Smith, of Croydon, for its erection, which is to cost £113,300. The site for the new building is in Haling Park.

Croydon.—HOSTEL.—Work is shortly to start upon the erection of the new St. Mary's Maternity Hostel, in St. James's-road, for the Croydon Mothers' and Infants' Welfare Association. The contract has been placed with Mr. E. H. Smith, of 48, Wellesley-road, Croydon. His tender amounted to £15,000. Plans and specifications have been prepared by Mr. G. F. Carter, Borough Surveyor.

Earl's Court.—HOSPITAL.—A new hospital is to be erected at the corner of Finborough-road and Richmond-road, S.W.5, for the Governors of the Kensington, Fulham and Chelsea General Hospital. The plans have been prepared by Sir Aston Webb & Son, of 19, Queen Anne's-gate, S.W.1. Messrs. Holloway Bros. (London), Ltd., Bridge Wharf, Grosvenor-road, S.W.1, have secured the contract for the erection of the first two sections.

Eltham. — LIBRARY. — The Woolwich Borough Council recommend that a library be erected, to the plans of the Borough Engineer, on the Council's land at the junction of Southwood and Footscray-roads, Eltham, at an estimated cost of £11,500.

Eltham.—HOUSES.—Messrs. Eley & Allen, architects, 83, Powis-street, Woolwich, have prepared plans for Messrs. C. & D. J. Barwell, builders, for 66 houses on the east side of Green-lane, Eltham.

Eltham.—HOUSES.—Messrs. C. & D. J. Barwell, builders, Sidcup-road, Eltham, S.E., have submitted an application to the local council for the erection of 44 houses in Charldane-road, Eltham.

Eltham.—ARCADE.—Mr. G. N. S. Stone, Staple Inn-buildings, Holborn, W.C.1, is the architect and surveyor for the amended plans for Arcade-buildings, in Eltham High-street.

Gloucester-road.—DAIRY.—A new distributing dairy is to be erected for the London Co-operative Society, Ltd., of Whitta-road, Manor Park, E.12. The plans have been prepared by Mr. A. Hulbert, works manager, Whitta-road, Manor Park, E.12.

Gunnersbury.—FACTORY.—On a site at the corner of the Great West-road and the south side of Boston-road, it is proposed to erect a new factory. The architects are Messrs. Moore & Crabtree, Queen's Gate-chambers, Bradford.

Hendon.—PREMISES.—New headquarters and drill hall is to be erected at the Rookery Estate, The Hyde, Hendon, N.W., for the Territorial Army and Air Force Association of the County of Middlesex. Mr. S. W. Cranfield, F.R.I.B.A., architect, 7, Bedford-square, W.C.1, has prepared the plans.

Ilford.—ADDITIONS.—Considerable extensions are to be made at the Isolation Hospital in Grove-road. The plans have been prepared by Mr. H. Shaw, Borough Surveyor. The scheme is estimated to cost £39,761.

Jermyn-street.—REBUILDING.—The Princes Hotel, Jermyn-street, S.W.1, has been closed, and is to be pulled down and reconstructed. The work has begun, and by next September, it is hoped, a wide shopping arcade, running the whole width between Piccadilly and Jermyn-street, and a block of offices will replace the hotel. The Piccadilly Development Syndicate are connected with the scheme. The architect is Mr. H. Kempton Dyson, of 25, Victoria-street, S.W.1. Messrs. F. & H. F. Higgs, Ltd., of Station Works, Hinton-road, S.E.24, are the contractors.

Kentish Town-road.—SHOPFRONT.—Messrs. A. Edmonds & Co., Ltd., Constitution Hill, Birmingham, have secured through their office at 29/30, High Holborn, W.C.1, the contract for shopfront for Messrs. Barney & Sons, Ltd., 193-195, Kentish Town-road, N.W.5. Messrs. Frank Swain are the architects.

Leytonstone.—PREMISES.—Messrs. Boots, chemists, 182, Regent-street, W.1, have acquired premises at 275, High-road, where it is intended to open a new branch. The plans for the scheme are in the hands of the Company's staff architect, Mr. P. J. Bartlett, Station-street, Nottingham.

Little Trinity-lane. — RECONSTRUCTION. — The Painters' Company propose shortly to put in hand reconstruction work in connection with their Hall. The scheme has been planned by Mr. H. D. Searles-Wood, F.R.I.B.A., the honorary architect to the Company, Painters' Hall. Messrs. W. F. Blay, Ltd., 1, Dowgate-hill, E.C.4, have secured the contract for the work. It is estimated that an expenditure of £.0,000 will be involved.

North Acton.—BANK.—The Westminster Bank, Ltd., Lothbury, E.C.2, are to erect new branch premises at the junction of Western-avenue and Victoria-road. The plans have been prepared by Mr. Septimus Warwick, F.R.I.B.A., 13, Somers-place, Hyde Park, W.2.

North Woolwich. — REBUILDING. — Messrs. Johns Bros., builders, of Francis-street, North Woolwich, are rebuilding 130 and 132, Albert-road, North Woolwich.

Oxford-street.—ADDITIONS.—Messrs. Lilley & Skinner, Ltd., 192, Pentonville-road, N.1, are to extend their branch premises. They have acquired property in Stratford-place for this purpose. The plans for the scheme have been prepared by Mr. Gordon Jeeves, F.R.I.B.A., architect, 16, Hanover-square, W.1.

Purley.—EXCHANGE.—Tenders are being invited by the Commissioners of His Majesty's Office of Works for the erection of "Downland" telephone exchange, Hooley, Purley. Plans are by the H.M.O.W. Architect's department.

Summerstown.—FACTORY.—Messrs. Masson, Scott & Co., Ltd., Townmead-road, Fulham, S.W.6, are to erect new factory buildings at Riverside-road, S.W.17. The architect is Mr. W. C. Le Maitre, F.R.I.B.A., 28, Albemarle-street, W.1.

Teddington. — OFFICES. — Messrs. Lloyds Bank, Ltd., Leadenhall-street, London, E.C.3, are to erect new branch premises in the High-street. Their contract has been placed with Messrs. Walden & Co., Ltd., of Swallowfield, Reading. The plans are by Mr. W. A. Randall Wells, 52, Upper Mall, W.C.2.

Twickenham.—CHURCH.—Messrs. Markby, Stewart & Co., Royal Bank-buildings, 5, Bishopsgate, E.C.2, informed the Town Council that the London Diocesan Fund proposed to purchase a piece of land in Powder Mill-lane for the erection of a church, mission church, mission hall, or parsonage house.

Twickenham.—The Borough Engineer of the Town Council has submitted plans and estimates of the cost of carrying out building works at the London-road depôt. The estimated cost is £6,950. Application is to be made to the Ministry of Health for sanction to borrow £7,000 for the work.

Wales Farm-road. — ALTERATIONS. — Also additions are to be made to the "Castle Hotel" for Messrs. Fuller, Smith & Turner. The work has been planned by Mr. Nowell Parr, architect, 42, Cranley-gardens, S.W.7.

Walthamstow.—CHURCH.—Messrs. George Baines & Son, architects, 121, Victoria-street, Westminster, S.W.1, have prepared plans for the erection of a United Methodist church in Penrhyn-crescent, Walthamstow. The surveyor is Mr. Henry Smith, F.S.I., of 37, High Holborn, W.C.1, and the contractors are Messrs. A. E. Symes, Ltd., Carpenter's-road, Stratford, E., who tendered at £9,877.

Walthamstow.—HOUSES.—The local council has approved an application by Mr. S. L. Robinson for 48 houses and 16 garages in Evanston-avenue and Studland-road, E.

Wembley. — HOUSES. — Messrs. F. & C. Costin, Ltd., builders, of 13, Arundel-street, W.C.2, to erect 26 houses, 12 in Sedgcombe-avenue, and 14 in Woodcock Hill-lane.

Wood Green.—SHOPS.—Ten shops, with flats above, are to be erected in Green-lanes, N. Messrs. J. Smith & Sons (Norwood), Ltd., Carmichael-road, South Norwood, S.E.25, have secured the contract. The plans have been prepared in the Surveyor's Department of Messrs. Hillier, Parker, May & Rowden, of 27, Maddox-street, W.1.

Woolwich.—HOUSES.—Messrs. J. R. Davies, Ltd., 23, High-street, Beckenham, has submitted an application to the Woolwich Borough Council for the erection of 26 houses in Sidewood-road, Eltham. The application has been approved.

Woolwich.—BUILDING.—For the erection of sanitary annexes at the married soldiers' quarters at Brookhill, Woolwich, for H.M. War Office Dept., Messrs. J. B. Edwards & Co., of 180, Piccadilly, W.1, have secured the contract.

TRADE NEWS

Heating and Sanitary Appliances.

Messrs. O'Brien, Thomas & Co., Ltd., of 17-18, Upper Thames-street, E.C.4, issue a handy catalogue dealing with fireplaces, cooking apparatus, domestic hot-water installations, and sanitary appliances. Fully illustrated and with specifications attached, the publication is likely to be of extreme use to architects or builders who require high-class goods on speedy delivery. The catalogue will be sent post free to any architect or builder who makes application for it.

Notice of Removal.

It is two years, we learn, since the expansion of business made it necessary that additional accommodation for Messrs. Sharpe & Rose, Ltd., leaded light manufacturers and glazing contractors, should be acquired at No. 232, Hackney-road. This expansion of business has continued, and the firm has therefore acquired considerably larger premises at St. Stephens Works, Quaker-street, Shoreditch, E.1 (Telephone: Bishopsgate 56 and 8267). **The change-over** from the present address to the new works will take place on January 27.

Paint Manufacturers' Reorganisation.

We are informed that there have been changes in the directorate of the old-established house of Pilcher's, Ltd., Mr. Harry Grinling and Mr. Sidney Grinling, who have had seats on the board for nearly 40 years, having recently resigned their directorships. Mr. W. H. Peak, O.B.E., who has had considerable experience of large industrial undertakings, has accepted a seat on the board, the present directorate consisting of Mr. Guy Gilbey, Mr. M. G. Routledge, Mr. Geoffrey Grinling, and Mr. W. H. Peak. A thoroughly progressive policy has been adopted by the new board, and extensive new and up-to-date plant installed to cope with the large and ever-increasing demand for Pilchers' specialities in paints, enamels, distempers and varnishes.

Modern Woodworking Machinery.

Under this title Messrs. J. Sagar & Co., Ltd., have produced a handsomely bound and got-out catalogue (No. 1,438), dealing with their general woodworking machinery of modern design. In an introduction the makers emphasise some points with regard to their products. British-made "Sagar" plant is designed for all trades (joiners and builders, cabinet-makers, joinery manufacturers, etc.), and the plant is equalled by none in regard to designs, accuracy, and good workmanship. Very careful attention has been given to the accurate balancing of revolving parts, and every machine is subjected to a thorough test in actual operation. Full information can be obtained from the makers at Canal Works, Halifax.

Architectural Lighting.

The intimate relationship between artificial light and architecture is becoming widely realised, since lighting undoubtedly can assist in the expression of architecture. The Lighting Service Bureau, which is the central organisation for British lighting development, has fully appreciated this fact, and to give architects the opportunity of becoming familiar with modern electric lighting, has inaugurated an architectural lighting department, of which Mr. Waldo Maitland, the architect, is in charge. This department has collected much data in Great Britain, as well as in France and Germany, and this is presented from the architects' point of view in the latest handbook entitled "Architectural Lighting." The Lighting Service Bureau exists, we learn, as a purely non-trading advisory department—its services are freely at the disposal of all members of the architectural profession. The issue "Architectural Lighting" itself contains much information of interest and value to architects. It is fully illustrated by means of photographs of buildings, rooms, etc., where architectural lighting has been employed, and of particular use is an article on "Architectural Lighting Systems." The publication may be obtained from the Lighting Service Bureau, at 15, Savoy-street, W.C.2, where also architects are invited to pay a call and inspect for themselves the demonstration room.

ARCHITECTS' & BUILDERS' REFERENCE BOOK*

This volume of 193 pages deals principally with those constructive matters which are of primary importance in the building world and does not devote much space to those of merely decorative nature. It is very liberal in illustrations, containing 67 full-page, clear, and well-set-up plates, many of which are to scale. Being American in origin, naturally some of the building terms used are those in use in the U.S.A., and to those who are interested in American methods of construction the book presents much useful information.

Rather unusual construction is shown in the use of 3 in. planks in layers taking the place of the foundation concrete to a wall, also the incorporation of 8 in. by 8 in. timbers bedded in the concrete foundation as a substitute for iron reinforcement when the latter is difficult to obtain. The spread of brick footings is also shown replaced by several longitudinal and cross-layers of steel rails laid side by side, the cross-layers extending beyond those above to give the desired spread. Other unusual features are the anchoring of the splay cut ends of floor joists to the wall with 2 in. metal anchors, and the expensive construction of hollow walls with a 12 in. cavity, doubtless with very good reason, but necessitating the building of short partition walls, called "withes," across the cavity every four or five feet to tie in the outer and inner wall faces. Hollow wall construction is not, however, in general use in America on account of the extra ground required and presumably the high cost of building land, but concrete block construction is extensively employed, and six plates are devoted to illustrations of the various shapes, designs, and methods adopted in this type of building. Due to the fact that lumber is steadily growing scarcer and more expensive, the timber-framed house of America is sometimes faced with brick, stone, or concrete blocks, producing what might be termed a veneer wall tied to the vertical studding with some form of built-in wall anchor, and several methods of this dual construction are shown. The seven different standard sizes of bricks should be noted, and a complete schedule of the American granites, limestones, sandstones, and marbles is supplied with their respective weights, stresses, and other data. Flat-roof trusses, of types not often seen here, are dealt with, and the cabinet maker and joiner will find illustrations of the principal mouldings carried in stock by merchants and in use at the present time.

* By Frank Halstead. (John Wiley & Son, Inc., New York; and Chapman & Hall, Ltd., 11, Henrietta-street, Covent Garden, London, W.C.2.) 15s. net.

NEW CINEMAS

Belfast.—A new company is being formed for the erection of a super cinema in Howard-street, Belfast, to cost at least £100,000. In addition to the cinema there are likely to be shops, a restaurant, etc.

Chalfont St. Peter.—A new cinema is to be erected in the Market-place.

East Molesey.—The Associated British Cinemas, Ltd., propose to erect a new cinema on a site in Bridge-road, East Molesey. Plans will be prepared by Mr. W. R. Glen, architect to the company, at Heddon House, Regent-street, W.1.

London.—It is understood that Mr. Joseph Schenck, chief of the United Artists Film Corporation, has concluded his scheme for a 3,000-4,000 cinema. According to Mr. Schenck, the site is in the heart of the West End and building is expected to start very soon. The estimated cost is £1,000,000.

Newport.—The scheme for the erection of a new cinema at Austin Friars, proposed by Messrs. Tilney's Kinemas, Ltd., of the Olympia Picture House, Newport, Mon, is expected shortly to go ahead. The architects are Messrs. J. H. Phillips and Wride, L.R.I.B.A., of 7, Pembroke-terrace, Cardiff. The new building is to accommodate over 3,000 people.

Northampton.—The Corporation has approved plans submitted for extensions to the cinema in Alcombe-road and Grove-road.

Wakefield.—Alterations are proposed to be made to the Empire Cinema to plans prepared by Mr. William Illingworth, F.R.I.B.A., architect, 15, Sunbridge-road, Bradford.

STAFF DINNERS

Caxton Floors, Ltd., and Messrs. A. W. Dickinson, Ltd.

We had pleasure in attending a most enjoyable function (chiefly remarkable for the number present of "Caxton and Dickinson Scots" and the complete success of the evening) on Friday last, when the annual dinner of the Caxton Floors, Ltd., and Messrs. A. W. Dickinson, Ltd., was held, under their new working arrangement, at Frascati's. Mr. A. W. Dickinson occupied the chair, and amongst the guests and company were Messrs. Bertie Crewe, Herbert Welch, Mr. and Mrs. Clifford Aish, Mr. and Mrs. Malc. Matts, Mr. and Mrs. T. P. Bennett, Messrs. G. A. Allan, A. G. Dickie, R. Hutton, G. Alan Fortescue, Cecil Masey, M. Mason, R. Dodson, T. S. Munroe, A. W. Medway, R. Laidlaw Smith, G. S. Walker, C. J. Goldsmith, F. B. Pitcher, Mr. and Mrs. C. King, and the secretary, Mr. R. Cowling.

The loyal toast being honoured, the Chairman briefly submitted "The Guests," whom he welcomed heartily and in no "hollow" manner. He did not wish to intrude the subject of business on an evening intended for amusement and fun, but he would just say that when he saw the large gathering of guests and staff he was reminded of those long-past days when he, with one colleague, commenced business in a one-roomed office, shared a telephone and a typewriter with another "firm" in the next room, and had one client, an architect. He was very proud to say that that colleague was still a valued member of the firm, and that the architect, Mr. Matts, was still a client.

Mr. Malc. W. Matts replied in architectural and humorous terms. He wished to suggest only one alteration: that was the subject of the toast, that of "Our Permanent Guests."

The speeches over, a most enjoyable entertainment followed, and dancing to Mr. Georges Haeck's band continued to a late hour. We can only add that to have successfully absorbed the shock and vibration caused by the enthusiastic, cap-bedecked company of 300, the flooring must surely have been "Cax" in superstructure and underneath "Caxton."

The Brilliant Sign Co., Ltd.

A successful dinner was given by Mr. and Mrs. F. G. Lucas, directors of the Brilliant Sign Co., Ltd., of Paragon Works, W.12, to the selling force and senior office staff, at the Trocadero, on Friday, December 13. Some 60 odd *couverts* were laid, and the whole evening was thoroughly enjoyed, assisted by a well-organised concert. The chairman, Mr. F. G. Lucas (governing director), in his speech, dealt with the great advance made in the business since its reorganisation at the beginning of the year, adding that as soon as the company secured the benefits accruing from the recently opened new works and installation of some 20 odd up-to-date machines, he looked forward with confidence to putting up a record for 1930 in all sections. Telegrams were received from old friends of the company, the theme of which were all more or less on the staff putting in good team-work and pulling together in the company's interests.

RATES OF WAGES IN THE BUILDING TRADE

[Every endeavour is made to ensure accuracy but we cannot be responsible for errors.]

	Masons.	Bricklayers.	Carpenters Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Labourers.
Aberdare	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Accrington	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Aldershot	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/0
Alfreton	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Alnwick	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Altrincham	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Ashford Kent	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/0
Ashington	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Ashton-under-Lyne	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Aylesbury	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/0
Aylsham	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/0
Banbury	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/0½
Barnsley	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Barnstaple	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Barrow-in-Furness	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Barry	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Basingstoke	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/0½
Bath	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Bedford	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Berwick	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Bexhill	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/0½
Birkenhead	1/9	1/9	1/9	1/10	1/9	1/9	1/9	1/3½
Birmingham	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Bishop Auckland	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Blackburn	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Blackpool	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Bognor Regis	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/0
Bolton	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Bournemouth	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Bradford	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Bradford-on-Avon	1/6	1/6	1/6	1/6	1/6	1/6	1/5½	1/0
Braintree	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Brentwood	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Bridgwater	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/0½
Bridlington	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Brighton	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Bristol	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Bromsgrove	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Bromyard	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	11½
Bungay	1/3	1/3	1/3	1/3	1/3	1/3	1/3	11½
Burnley	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Burton-on-Trent	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Bury	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Buxton	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Cambridge	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Canterbury	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/0½
Cardiff	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Carlisle	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Chatham	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Chelmsford	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Cheltenham	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Chester	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Chesterfield	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Chorley	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Cirencester	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/0½
Clacton	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Colchester	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Coventry	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Cranbrook	1/3	1/3	1/3	1/3	1/3	1/3	1/3	11½
Crewe	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Cromer	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/0
Darlington	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Deal	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/0½
Denbigh	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Derby	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Devizes	1/6	1/6	1/6	1/6	1/6	1/6	1/5½	1/0
Dewsbury	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Doncaster	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Dorchester	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/0
Dorking	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Dovercourt	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Driffield	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Droitwich	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Dudley	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Durham	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Eastbourne	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
E. Glam. Mon.Val.	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Ely	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/0
Exeter	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/5½	1/2
Exmouth	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/0½
Fakenham	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/0
Felixstowe	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Folkestone	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/0½
Frome	1/6	1/6	1/6	1/6	1/6	1/6	1/5½	1/0
Glossop	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Gloucester	1/6	1/6	1/6	1/6	1/6	1/6	1/5½	1/1½
Godalming	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/0½
Goole	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Gosport	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Grantham	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Great Yarmouth	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Grimsby	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Guildford	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Halifax	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Harpenden	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Harrogate	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Hartlepools	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Harwich	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Hastings	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/0½
Hatfield	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Hednesford	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Hereford	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/4½	1/1½
Herne Bay	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/0
Hertford	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Hitchin	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Hoddesdon	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Holt	1/3	1/3	1/3	1/3	1/3	1/3	1/3	11½
Huddersfield	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Hull	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Hunstanton	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/0
Huntingdon	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/0½
Isle of Wight	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/0
Ipswich	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Keighley	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Kettering	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Kidderminster	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
King's Lynn	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/0½
Lancaster	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½

	Masons.	Bricklayers.	Carpenters Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Labourers.
Leamington Spa	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Leeds	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Leicester	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Leighton-Buzzard	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Lichfield	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Lincoln	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Littlehampton	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Liverpool	1/9	1/9	1/9	1/10	1/9	1/9	1/9	1/3½
Llandudno	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Llanelly	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
London:								
12 m. radius	1/9	1/9	1/9	1/9*	1/9	1/9	1/9	1/3
12-15 m. radius	1/8½	1/8½	1/8½	1/8½*	1/8½	1/8½	1/7½	1/3½
Loughborough	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Lowestoft	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Luton	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Macclesfield	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Maidstone	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Malvern	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Manchester	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Mansfield	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Margate	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Market Harb'rough	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Matlock	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Melton Constable	1/3	1/3	1/3	1/3	1/3	1/3	1/3	11½
Melton Mowbray	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Merthyr Tydfil	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Middlesbrough	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Newark	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Newbury	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Newcastle-on-Tyne	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Newcastle-ur-Lyme	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
New Forest	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Newmarket	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Newport, Mon.	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Northampton	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Norwich	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Nottingham	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Nuneaton	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Oakham	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Oldham	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Oxford	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Paignton	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Peterborough	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Plymouth	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Pontypridd	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Portsmouth	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Preston	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Ramsgate	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Reading	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Redcar	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Redditch	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2½
Reigate	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Retford	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Ripon	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Rochdale	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Rochester	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Rugby	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Saffron Walden	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	11½
St. Albans	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
St. Helens	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Sawbridgeworth	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Saxmundham	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	11½
Scarborough	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Sevenoaks	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Sheffield	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Shrewsbury	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Sittingbourne	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Southampton	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Southend-on-Sea	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Southport	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
South Shields	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Stevenage	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Stockport	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Stockton-on-Tees	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Stoke-on-Trent	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Stourbridge	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Stourport	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/0½
Stowmarket	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/1½
Stratford-on-Avon	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/0½
Stroud	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/1½
Sunderland	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Swaffham	1/3	1/3	1/3	1/3	1/3	1/3	1/3	11½
Swansea	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Swindon	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/2½
Tamworth	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Taunton	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Thetford	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Torquay	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Totnes	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Trowbridge	1/4	1/4	1/4	1/4	1/4	1/4	1/3	1/0
Tunbridge Wells	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Uttoxeter	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Wakefield	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Walsall	1/7	1/7½	1/7	1/7	1/7	1/7	1/7	1/2½
Wallsend	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Warminster	1/4	1/4	1/4	1/4	1/4	1/4	1/3	1/0
Warrington	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Warwick	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Wells (Norfolk)	1/3	1/3	1/3	1/3	1/3	1/3	1/3	11½
Welwyn Gar. City	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
West Bromwich	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Weston-sup.-Mare	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Weymouth	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/3½
Whitby	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Wigan	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Winchester	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Windsor	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Wisbech	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Wolverhampton	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Woodbridge	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0½
Worcester	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Worksop	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Worthing	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Wrexham	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Wroxham	1/3	1/3	1/3	1/3	1/3	1/3	1/3	11½
Wymondham	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	11½
York	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½

* The rate recognised by the National Association of Plasterers, Granolithic and Cement Workers, is 1/11½ per hour.

For Building Trade wages in Scotland, see page 156.

CONTRACTS, COMPETITIONS, &c.

For some contracts still open, but not included in this List see previous issues. Those with an asterisk are advertised in this number. Certain conditions beyond those given in the following information are imposed in some cases, such as that advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed, that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given is the latest date when the tender, or the names of those willing to submit tenders, may be sent in, the name and address at the end is the person from whom or place where quantities, forms of tender, etc., may be obtained.

Following is a list of abbreviations:—Borough Surveyor, B.S.; Borough Engineer, B.E.; District Surveyor, D.S.; Clerk, C.; Town Clerk, T.C.; County Engineer, C.E.; County Surveyor, C.S.; County Architect, C.A. Surveyor, S.; Engineer, E.; Borough Architect, B.A.; Architect, A.

BUILDING, PAINTING, ELECTRIC LIGHTING, HEATING, etc

JANUARY 13.

Becontree and Dagenham.—Heating.—At the above clinics, for the Dagenham U.D.C. The Clerk, Council Offices, Becontree-av., Chadwell Heath.

Bransty.—New school.—Erection of, for the Whitehaven Corporation. Town Clerk, Town Hall, Whitehaven. Dep. £2 2s.

Cromer.—Conveniences.—Conveniences, motor park, Cadogan-rd., for U.D.C. Robert Croome, S.

Denbigh.—Dwellings.—Eighteen workmen's dwellings and road and sewer, for T.C. M. E. Morris. Sanitary Inspector. Dep. £2 2s.

Faringdon.—Houses.—20 parlour-type, in Station-rd., Faringdon, and 38 non-parlour-type in parishes of Ashbury, Chrivenham, Kingston Lisle, Uffington, Stanford, Longworth, and Longcot, for R.D.C. A. Buller West, F.R.I.B.A., The Knowl, Abingdon. Dept. £2 2s.

Grimsby.—Laboratory.—At 38, Queen-st., for Corporation. H. G. Whyatt, B.E. and S., 170, Victoria-st.

Guildford.—44 Houses.—Erection of, on Shepherd's Hill Housing Estate. J. W. Hipwood, Assoc.M.Inst.C.E., Borough Surveyor, Municipal Offices, Tuns Gate, Guildford.

Hendon.—Headquarters.—Headquarters and drill hall, at The Rookery Estate, The Hyde, Hendon, N.W., for Territorial Army and Air Force Association of County of Middlesex. S. W. Cranfield, F.R.I.B.A., 7, Bedford-sq., W.C.1. Dep. £2 2s.

Leicester.—Hall.—School hall and headmaster's house. F. P. Armitage, Director of Education, Town Hall, Leicester. Dep. £2 2s

London.—Blocks of Dwellings.—Erection of, at Lambeth and Stockwell, for the L.C.C. The Clerk of the Council, the County Hall, Westminster-bridge, S.E.1. Dep. £2.

Sowerby Bridge.—Rebuilding.—Boundary wall at Midgley Council school. A. Beilby, Education Office, Sowerby Bridge

Stoke and Wolstanton.—Heating.—(1) Heating, steam and hot and cold water services; (2) cooking apparatus; and (3) electric light and power wiring and fittings, in connection with new nurses' home, London-rd. Institution, Stoke-on-Trent, for B.G. Edwards & Shaw, consulting engineers, 105, Colmore-row, Birmingham. Dep. £3.

West Derby.—Building.—(*a*) Alder Hey Hospital, Eaton-rd., West Derby: proposed reception and special treatment department, new operating department, and department for sick nurses; (*b*) Walton Institution, Rice-lane, Walton: proposed stores for X-Ray films; (*c*) Alder Hey Hospital, Eaton-rd., West Derby: proposed stores for X-Ray films. for B.G. E. B. Bailey, F.S.I., L.R.I.B.A., architect, 34, Castle-st., Liverpool.

JANUARY 14.

Adwick-le-Street.—School.—Special subjects block at Adwick-le-Street-Woodlands Middle school, for West Riding E.C. Education Officer, County Hall, Wakefield.

Devizes.—Houses.—40 non-parlour type, on Jump Farm site, for T.C. A. W. Jakeway, B.S. Dep. £2 2s.

***Dorchester.**—Bottling Stores.—Crickmay & Sons, architects, Weymouth. Deposit £2 2s

Hull.—Installation.—Of electric light at Colony for mental defectives, Tilworth-grange, Sutton, for T.C. D. Harvey, A.R.I.B.A., City Architect. Dep. £1 1s.

London.—Alterations.—Also decoration and installation of electric light at superintendent's house, Abbey Mills pumping station, Abbey-lane, Stratford, for L.C.C. Chief Engineer, Old County Hall, Spring-gardens, S.W.1. Dep. £1.

Norwich.—Improvements.—Construction shedding, grandstand, offices, and other woodwork erections, etc., at Royal Norfolk Show. W. Kerridge, secretary, East Harling, Norwich.

Norwich.—Building.—In connection with mains offices, at electricity works, Duke-st., for T.C. City Electrical Engineer. Dep. £2 2s.

Prestwich.—Demolition.—Of Woodhill cottage, Schools-lane, for U.D.C. E. and S.

Purley.—Telephone Exchange.—Erection of, for the Commissioners. H.M.O.W. Contracts Branch, King Charles-st., London, S.W.1. Dep. £1 1s.

Sheffield.—Houses.—77 non-parlour, on Wisewood estate (building scheme No. 8), for T.C. W. Geo. Davies, F.R.I.B.A., City Architect. Dep. £2.

South Shields.—Houses.—42, on Marsden housing site at Whitburn, for R.D.C. T. E. Gilchrist, surveyor and architect. Dep. £3 3s.

Winchester.—Premises.—Showroom, with office, and reconstruction of existing cottages at Twyford, for T.C. Cancellor & Sawyer, F. & A.R.I.B.A., Queen Anne-chams. Dep. £2 2s.

JANUARY 15.

Coulsdon and Purley.—Offices.—(*a*) Oak boarded flooring; (*b*) Birch block flooring; (*c*) Sanitary fittings, for new Council Offices, for U.D.C. Nicholls & Hughes, architects, 4, Raymond-bldgs., Gray's Inn, W.C.1.

Droitwich.—Fencing.—Wrought-iron railing enclosing the Council's housing site at Burrish-st., for T.C. C. T. Butler, B.E., 105, Friar-st.

Kemsing.—Alterations and Additions.—To the Council school, for the Kent E.C. Director of Education, Springfield, Maidstone, Kent. Dep. £2 2s.

Liverpool.—Piggery.—At City Hospital, Fazakerley, for T.C. Land Steward and Surveyor.

Marple (near Stockport).—New School.—Completion of, for the Cheshire C.C. Leslie S. Jones, Education Offices, 24, St. Petersgate, Stockport. Dep. £2 2s.

Stalybridge.—Steelwork.—Structural steel framework at extensions at Hartshead power station, for Stalybridge, Hyde, Mossley, and Dukinfield Tramways and Electricity Board. W. H. George & Son, architects, 7, Warrington-st., Ashton-under-Lyne. Dep. £2.

Wakefield.—Annexes.—Two sanitary annexes at Wakefield Mental Hospital, West Riding Mental Hospitals Board. W. E. H. Burton, architect and engineer, Wakefield. Dep. £1.

JANUARY 16.

Bedford.—(*a*) Houses; (*b*) Roads and Sewers.—Erection and completion, on the London-rd. housing site, for the Corporation. N. Greenshields, A.M.I.C.E., Borough Engineer and Surveyor, Newnham House, Horne-lane, Bedford. Dep. £2 2s. (each contract).

Brighton.—Conveniences.—Public conveniences for men and women at "Pepper Box," Queen's Park-rd., for C.B. B.E. and S. Dep. £2 2s

Dublin.—Installation.—Electric light in Registry of Deeds, Henrietta-st., for Commissioners of Public Works. T. Cassedy, secretary, Office of Public Works. Dep. £1.

***Fulham.**—Hot Water Boiler.—Installation of, at the Fulham Hospital. Clerk to the Guardians, Guardians' Offices, 129, Fulham Palace-rd., Hammersmith, W.6.

Lenham.—Home.—Nurses' home at Sanatorium, for Kent C.C. County Architect, 86, Week-st., Maidstone. Dep. £2.

London.—Painting.—Cleaning and repainting station buildings, etc., at Tynho, Charlbury, etc.; Fernhill Heath, Round Oak, etc.; Small Heath, West Bromwich, etc.; Hall Green, Shirley, etc.; Long Marston, Milcote, etc.; Dunstall Park, Shifnal, etc.; Leamington and Tyseley; for G.W.R. F. R. E. Davis, secretary, Paddington Station, W.2.

JANUARY 17.

Bristol.—Houses.—Sea Mills housing site, 44 houses, and Shirehampton housing site, 14 houses, for T.C. L. S. McKenzie, City E. and S., Housing Department, 51, Prince-st., Bristol. Dep. £1.

Letterston.—Building.—Reroofing existing farm houses; rebuilding Crigian house; laying water pipe to Great Letterston farm houses; laying water pipe to certain fields; steel post and wire fencing across certain fields; supplying about 300 steel fencing posts and supplying 40 (approx.) new field gates, at Great Letterston farm, for Pembrokeshire C.C. County Land Agent, County Offices, Haverfordwest.

JANUARY 18.

Bradninch.—Rebuilding.—Rhode farmhouse at Coombe Farm, for Devon C.C. Clerk, 21, Southernhay West, Exeter.

Kiveton Park.—Installation.—Electric light in mixed department of Council school, for E.C. A. Rayner, 151, Cross-hill, Ecclesfield.

JANUARY 20.

Clacton-on-Sea.—Alterations.—Also additions to conveniences, Lower Promenade, West Cliff, for U.D.C. W. Aiston, S.

East Preston.—Repairs.—Front door porches and repairs and exterior painting to cottages at Rustington and Clapham, for R.D.C. R. E. Booker, building surveyor.

Goole.—Fencing.—At playing fields at Secondary school, for West Riding E.C. Education Officer, County Hall, Wakefield.

Haverfordwest.—Houses.—Thirty-two, for T.C. D. F. Ingleton, Lic.R.I.B.A., Victoria-place. Dep. £2 2s.

Letchworth.—Houses.—50 non-parlour, near Icknield-way, for U.D.C. G. Brown, clerk. Dep. £2 2s.

JANUARY 21.

Belfast.—Installation.—Of electric lighting system in alterations and additions to Nurses' Home, Infirmary, for B.G. R. H. Wilson, clerk.

Haverton Hill-on-Tees.—Houses.—On Clarence-rd. estate, for U.D.C. Kitching & Archibald, architects, 21, Albert-rd., Middlesbrough.

Newport, Mon.—Alterations.—To Pill Baths, to form an Employment Exchange, for the Commissioners, H.M.O.W. Contracts Branch, King Charles-st., S.W.1. Dep. £1 1s.

Old Flotten.—School.—Elementary school at Woodston, for Hunts E.C. County Surveyor, Walden House, Huntingdon.

Paulton.—Additions.—Also improvements to Church of England school, for Managers. A. J. Pictor, F.R.I.B.A., architect, 14, Queen-sq., Bath.

Rotherham.—Houses.—440, on Herringthorpe site, for C.B. V. Turner, B.E. Dep. £2 2s.

***Tottenham.**—Public Convenience.—Erection of, for U.D.C. Clerk and Solicitor of the Council, Town Hall, Tottenham, N.15. Dep. £2.

JANUARY 22.

Brentford.—Building.—Steam disinfector at West Middlesex Hospital, Isleworth, for B.G. F. E. Harmsworth, clerk, Toolands House, 34, Twickenham-rd., Isleworth.

Solihull.—Telephone Exchange.—Erection of for the Commissioners, H.M.O.W. Contracts Branch, King Charles-st., London, S.W.1. Dep. £1 1s.

Upton.—Building.—New police station at Upton, near Birkenhead, for Cheshire C.C. F. Anstead Browne, F.R.I.B.A., County Architect, Newgate-st., Chester. Dep. £2 2s.

JANUARY 23.

Aylesbury.—Building.—Baptist Church and schoolroom, Penn-rd., Southcourt. F. H. Howard & Sons, architects and surveyors. County Estate Office, Station-rd., Chesham.

Harold Wood.—Extensions.—Hospital buildings, The Grange, for West Ham C.B. B.E. Dep. £1.

Pendleton.—Telephone Exchange.—Erection of, for the Commissioners, H.M.O.W. Contracts Branch, King Charles-st., London, S.W.1. Dep. £1 1s.

Reading.—237 houses.—Erection of, on the Whitley Housing Estate, for the Corporation. Town Clerk, Town Hall, Reading. Dep. £2 2s.

JANUARY 24.

Dover.—Submarine Cable Jetty.—(R.C. erection of, for the Commissioners, H.M.O.W. Contracts Branch, King Charles-st., London, S.W.1. Dep. £1 1s.

Near Wednesbury.—Relaying.—Taking up ward floor at Moxley Hospital, near Wednesbury, and relaying in approved material, for South Staffordshire Joint Smallpox Hospital Board. H. B. Robinson, B.E. and S., Town Hall, Wolverhampton.

JANUARY 25.

Chingford.—Repairs.—At 6, Templeton-av., for the U.D.C. Clerk to the Council, Town Hall, Chingford. Dep. £1.

JANUARY 27.

Maidstone.—New Offices.—Erection of, for the Corporation. Town Clerk, Town Clerk's Offices, King-st., Maidstone. Dep. £2 2s.

Near York.—Houses.—Poultry houses and runs to accommodate a thousand birds, at Farm Institute, Askham Bryan, near York, for Yorkshire Council for Agricultural Education. Joint Clerks, County Hall, Beverley. Dep. £1.

JANUARY 31.

Arbroath.—Additions.—Also alterations, Arbroath High school, for Forfarshire E.C. Master of Works, Education Offices, Forfar.

Didcot.—School.—Erection of, for the Berkshire E.C. W. C. F. Anderson, Education Secretary, Shire Hall, Reading. Dep. £2 2s.

Marsh.—Extensions.—To the Grammar School, for the Isle of Ely E.C. E. J. P. Osborne, Director of Education, Education Offices, March. Dep. £2 2s.

FEBRUARY 3.

Newcastle-upon-Tyne.—Schools.—Large Central schools (1,000 scholars) on site having frontage to Middle-st., Walker, for E.C. Thos. Walling, Director of Education, Northumberland-rd. Dep. £5.

Sutton and Cheam.—Lavatories.—At The Green, High-st., Sutton, for U.D.C. W. Hedley Grieves, S. Dep. £2 2s.

FEBRUARY 10.

London.—Building.—New dust shoots on site adjoining Chancellor's-wharf, for Hammersmith B.C. R. Hampton Clucas, B.E. and S.

FEBRUARY 11.

Gosforth.—Houses.—16 three-roomed, Coxlodge-rd., for U.D.C. G. Nelson, E. and S.

FEBRUARY 14.

Cardiff.—Garage.—Foundations of bus garage at Sloper-rd., for T.C. Geo. H. Whitaker, City E. Dep. £3 3s.

NO DATE.

Fareham.—Extensions.—Also alterations and repairs to Little House, Portsmouth-rd. P. Olson, Aldeburgh, Suffolk. Dep. £1 1s.

Mexborough.—Repairs.—To playgrounds, boundary walls, etc., at Mexborough, Doleliffe-rd. Council school, for West Riding C.C. W. H. Jones, Divisional Clerk, Education Office, Mexborough.

Rothwell.—Installation.—Of electric light in Lofthouse Council school, for West Riding E.C. Percy Beaumont, W.R. Education Office, 8, St. John's North, Wakefield.

MATERIALS, etc.

JANUARY 13.

Dublin.—Blocks.—300,000 creosoted deal paving blocks, and approximately 256,000 creosoted deal splines, or alternatively 300,000 firmoseo paving blocks, for T.C. G. J. Sherlock, T.C.

London.—Building Materials, etc.—For Camberwell B.C. W. Bell, B.E. and S.

London.—Highway Materials.—For St. Pancras B.C. E. W. Swinstead, B.E. and S.

JANUARY 14.

Bexley.—Highway Materials.—For U.D.C. W. T. Howse, S.

Chelmsford.—Highways Materials.—For R.D.C. L. A. Cousins, Highway S.

Northern Ireland. — Electrical Supplies. — For Government. Secretary, Ministry of Finance, 15, Donegall-sq. West, Belfast.

JANUARY 15.

Caterham and Warlingham.—Road Materials.—For U.D.C. H. R. Martin, S.

JANUARY 16.

Cheltenham.—Highway Materials.—For T.C. J. S. Pickering, B.E.

Pontefract.—Chippings, etc.—For T.C. W. H. Newton, B.E.

Horsforth.—Granite Chippings, etc.—For U.D.C. Jas. B. Aldersley, S.

***London.**—Builders' Materials.—For Stepney B.C. B. J. Belcher, B.E. and S.

West Riding.—Road Materials.—For C.C. West Riding Surveyor.

JANUARY 20.

Devon.—Road Materials.—For C.C. R. M. Stone, C.S. (North-Western Division), 9a, High-st., Barnstaple.

West Sussex.—Tar.—1,250,000 gallons of tar, etc., for C.C. H. W. Bowen, C.S.

JANUARY 21.

India.—Mild Steel Bars.—For Indian Stores Department, New Delhi. Department of Overseas Trade, 35, Old Queen-st., S.W.1. (Ref. A.X. 8964.)

JANUARY 22.

Essex.—Road Materials.—For C.C. W. H. Morgan, C.S., Chelmsford.

JANUARY 23.

Liverpool.—Paints, etc.—For T.C. W. Moon, T.C.

JANUARY 25.

Blackburn.—Road Materials.—For C.B. H. M. Webb, Borough and Water Engineer.

JANUARY 29.

Hertfordshire.—Road Materials.—For C.C. A. E. Prescott, C.S.

JANUARY 30.

Southall-Norwood.—Road Materials.—For U.D.C. J. B. Thomson, E. and S.

JANUARY 31.

Croydon.—Highway Materials.—For C.B. B.E.

Norfolk.—Road Materials.—For C.C. S. H. Warren, C.S., Norwich.

FEBRUARY 1.

Folkestone.—Cement, etc.—For T.C. A. E. Nichols, B.E.

FEBRUARY 3.

Cairo.—Asphalt.—Egyptian Ministry of Public Works, 6,000 metric tons of asphalt for Tanzim Department, Cairo. Department of Overseas Trade, 35, Old Queen-st., S.W.1. (Ref. B.X. 6923.)

FEBRUARY 10.

Tottenham.—Road Materials.—For U.D.C. E. Townson, clerk.

FEBRUARY 12.

Middlesex.—Road Materials.—For C.C. A. Dryland, C.E., Middlesex Guildhall, Westminster, S.W.1.

Middlesex.—Bitumen Emulsions.—For C.C. A. Dryland, C.E., Middlesex Guildhall, Westminster, S.W.1.

FEBRUARY 17.

Victoria.—Bricks.—Refractory bricks and fireclay, for Yallourn power station, for State Electricity Commission of Victoria. Department of Overseas Trade, 35, Old Queen-st., S.W.1. (Ref. B.X. 5980.)

NO DATE.

London. — Building Materials. — For Army. Director of Army Contracts, Caxton House (West), Tothill-st., Westminster, S.W.1

ENGINEERING, IRON AND STEEL

JANUARY 13.

Settle.—Sewage.—Sewage disposal works at High Bentham, for R.D.C. F. J. Rodwell, E., 37 and 39, Prudential-buildings, Park-row, Leeds. Dep. £3 3s.

Wallasey.—Bridge.—Reinforced concrete bridge, in Bermuda-rd., Moreton, for Corporation. B.E. and S.

JANUARY 14.

Aberdeen.—Aqueduct.—Lining with concrete interior of the oval-shaped 3 ft. 9 in. by 3 ft. 3 in. brick aqueduct about 18 miles in length, and ancillary works, between Invercannie and Mannofield, for T.C. Thos. F. Henderson, Burgh Surveyor and Water Engineer. Dep. £3 3s.

London. — Extensions. — Existing filtration and aeration plant, for treatment of water in first-class swimming bath, for Hammersmith B.C. R. Hampton Clucas, B.E. and S.

Prestwich.—Tank.—Small septic tank and filter bed on land adjoining the sewage disposal works, for U.D.C. Dep. 10s. 6d.

JANUARY 15.

Knaresborough.—Sewerage.—Alterations and additions to ixisting sewage disposal works, for U.D.C. G. W. Boges, clerk. Dep. £5.

Rathdown.—Water Supply.—Laying down water supply to the districts of Ballyedmonduff, Woodside and Barnaculha, etc., for R.D.C. P. H. McCarthy, 2b, Lower Leeson-st., Dublin. Dep. £1 1s.

JANUARY 16.

Ham.—Sewage.—Alterations to tanks, engine house and pump well, and provision and erection of pumping plant, and other works at sewage disposal works, Lock-rd., Ham, for U.D.C. W. Fairley & Co., chartered civil engineers, Parliament-mansions, Westminster, S.W.1.

JANUARY 17.

Coventry.—Sewage.—Sewage disposal works at Finham, for T.C. E. H. Ford, City E. Dep £5 5s.

JANUARY 18.

Bridlington.—Bridge.—Reinforced concrete bridge with retaining walls and roadway connecting Springfield-av. with Hilderthorpe-rd., for T.C. B.S. Dep. £2 2s.

JANUARY 20.

Edinburgh.—Steelwork.—For conveyor house over existing boiler house at Portobello power station, for T.C. E. J. MacRae, A.R.I.B.A., City Architect.

JANUARY 21.

Wolverhampton.—Building.—Engine house, boiler house, tank, etc., in reinforced concrete, together with wharf, access road and other works at Dimmingsdale, for T.C. B. L. McMillan, Water Engineer and Manager. Dep. £5.

JANUARY 24.

Salford.—Sewerage.—Main sewerage works in Great Clowes-st., Broughton, for T.C. City E. Dep. £3 3s.

JANUARY 27.

Hazel Grove and Bramhall.—Sewage.—500 yds. of 24-in. stoneware outfall sewer, about 210 yds. in tunnel, with manholes and storm overflow; also detritus and screen chambers, storm water and settling tanks, percolating filters, humus tanks, effluent outfall, sludge drying beds with carriers and pipe connections, approach-rd., fencing and manager's house, with water supply therefor, at Offerton, for U.D.C. G. B. Kershaw, chartered civil engineer, 9, Victoria-st., Westminster, S.W.1. Dep. £5.

JANUARY 28.

Barton-upon-Irwell.—Reconstruction.—Of Rake-lane bridge, Clifton, for R.D.C. C. Faulkner, Clerk, Green-lane, Patricroft. Dep. £2.

JANUARY 31.

Johannesburg.—Bridgework.—Structural bridgework, for South African Railways and Harbours, Department of Overseas Trade, 35, Old Queen-st., S.W.1. (Ref. A.X. 8988.)

Johannesburg.—Steelwork.—Structural steelwork, etc., for points and crossings shop, for South African Railways and Harbours. Department of Overseas Trade, 35, Old Queen-st., S.W.1. (Ref. A.X. 8987.)

Stratford-upon-Avon.—Bridge.—Bridge, partly in reinforced concrete and partly in brickwork, over River Avon, for T.C. F. W. Jones, B.S. Dep. £3 3s.

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FEBRUARY 1.

Cairo.—Bridge.—Over River Nile at Kasr-el-Nil, for Main Roads and Bridges Department. Department of Overseas Trade, 35, Old Queen-st., S.W.1. (Ref. A.X. 8704.)

FEBRUARY 29.

Bann.—Drainage.—Extensive deepening and widening, through rock and other materials, of Lower Bann River over its whole course of approximately 30 miles between Lough Neagh and tidal portion of river near Coleraine, Co. Londonderry; and for concrete construction works in connection with installation of three sets of flood gates, together with auxiliary works for navigation and fisheries, for Government of Northern Ireland. Secretary, Ministry of Finance, 15, Donegall-sq. West, Belfast. Dep. £50.

MARCH 3.

Australia.—Pipes, valves and receivers, with accessories for high-pressure services at Yallourn Power Station extensions, for State Electricity Commission. Agent-General for Victoria, Victoria House, The Strand, London. Charge £2 2s.

MARCH 4.

Wellington, N.Z.—Structural Steel.—Structural steel, galvanised screens and ladder rungs, for Public Works Department, New Zealand. Department of Overseas Trade, 35, Old Queen-st., London, S.W.1. (Ref. A.X. 8785.)

ROAD, SEWERAGE, AND WATER WORKS

JANUARY 13.

Chorleywood.—Making-up.—Of Lower-rd., and construction of surface water drainage, for U.D.C. W. H. Scott, S. and E.

Guildford.—Sewers.—Concrete roads and sewers on Shepherd's-hill housing estate, for T.C. J. W. Hipwood, B.S.

Hambledon.—Main.—Laying of 533 yds. of 2 in. water main at Great Halfpenny-lane, St. Martha's, for R.D.C. P. G. Williams, S.

Maidens and Coombe.—Sewer.—Laying about 260 yds. run of 9-in. (glazed stoneware pipe soil sewer), from Coombe Hurst estate, for U.D.C. R. H. Jeffes, E. and S. Dep. £2 2s.

JANUARY 14.

Bangor.—Widening.—Road widenings on sections of London to Holyhead road, for T.C. B. Price Davies, E. and S. Dep. £1 1s.

Barton-upon-Irwell. — Drainage. — Carrying out certain works of surface-water drainage in Flixton-rd., Flixton, for R.D.C. E. L. Leeming, S.

Glasgow.—Widening.—Widening and reconstruction of 4 miles of existing road, between new house and Dewshill, to form part of a new road from Glasgow to Edinburgh, for T.C. D. Stenhouse, T.C. Dep. £3 3s.

Hertford.—Sewer.—Laying approximately 93 lin. yds. of a 15-in. stoneware pipe sewer, average depth 4 ft. 6 in., and other works in connection therewith, in Hertingfordbury-rd., Hertford, for T.C. B.S. Dep. £2 2s.

Manchester.—Pipes.—Hot-water supply pipes at Crumpsall Institution, Crescent-rd., Crumpsall, for B.G. E. Hargreaves, Superintendent of Works, Union Offices, All Saints', Manchester.

South Dublin.—Sewerage.—3,310 yds. lin. 12 in. stoneware pipe sewers in Crumlin, Drimnagh and Bluebell areas, for R.D.C. G. Gallagher, Clerk. Dep. £2 2s.

JANUARY 15.

Birmingham. — Paving. — Approximately 1,820 super yds. of 2 in. hand-laid granited rock asphalt paving in Loveday-st. from Bath-st. to near Lench-st.; approximately 7,150 super yds. of 2 in. hand-laid granited rock asphalt paving in St. Andrew's-rd.; approximately 7,877 super yds. of 2½ in single-coat asphalt paving in Electric-av., Witton, between Aston-lane and Deykin-av.; 6,650 super yds. of 3 in. two-coat asphalt paving in Marsh-lane between Streetly-rd. and Balmoral-rd., for T.C. H. H Humphries, City E. and S. Dep. £1 each.

Glamorgan.—Improvements.—For (1) Pontardawe and Ystalyfera main road, widening at Pwllbach, Ystalyfera; (2) Pontardawe and Ystalyfera main road, widening at Godrergraig; (3) Cardiff and Pontypridd main road, widening between Cardiff City Boundary and the Philog, Whitchurch, for C.C. H. Rowland, Clerk, Glamorgan County-hall, Cardiff.

Heston and Isleworth.—Making-up.—Of Wortonway North; Eversley-crescent (part of); Cranbrook-rd. (part of); for U.D.C. J. G. Carey, E. and S. Dep. £2 2s.

Kent.—Improvements.—Dangerous corners, Beerforstal, Lyminge; Derringstone, Barham; Brickhat, Barham; Bonniebush Hill; for C.C. H. T. Chapman, C.S., St. Peter-st., Maidstone. Dep. £2.

JANUARY 16.

Bawtry.—Asphalting.—Asphalting playground at mixed Council school, for West Riding E.C. A. J. Dempster, Education Offices, 20, Christ Church-rd., Doncaster.

Hereford.—Resurfacing.—Also tarpainting works, for T.C. City E.

JANUARY 17.

Runcorn.—Making-up.—2,000 yds. of streetmaking, for U.D.C. J. Wilding, S.

JANUARY 15.

Caerphilly.—Roads.—At Grange, Caerphilly, Tanybryn, Senghenydd, Danygraig, Abertridwr, Pwllypant, Llanbradach, housing sites, for U.D.C. B. Jenkins, Housing Officer. Dep. £2 2s.

Dunfermline.—Road.—Asphaltic surface coat of Dunfermline-Crossgates-Cowdenbeath rd., Contract No. 4, for D.C. of Fife C.C. H. MacDiarmid, engineer, Queen Anne-st., Dunfermline. Dep. £2 2s.

Hemsworth.—Improvements.—Widening and improvement of Barnsley and Pontefract main road, near L.M. and S.R. bridge, at Ackworth Moor Top, Hemsworth, for West Riding C.C. West Riding Surveyor, County-hall, Wakefield. Dep. £1.

Sowerby.—Widening.—Also improvement of Rochdale, Halifax and Elland main road, near tramway standard No. 125, between Sowerby-bridge and Triangle, for West Riding C.C. West Riding Surveyor, County-hall, Wakefield. Dep. £1.

JANUARY 20.

Chirk.—Road.—Proposed works of improvement at Chirk Bank, on London-Holyhead main road, A.5, near Chirk, for Denbighshire C.C. E. A. Evans, C.S., 46, Clwyd-st., Ruthin. Dep. £5.

Edmonton.—Making-up.—Chichester-rd., Galliard-rd. Wellington-rd. and Solna-rd., for U.D.C. Cuthbert Brown, E. and S. Dep. £2 2s.

Rochester.—Making-up.—Sewering, levelling, paving, metalling, flagging, channelling making good and lighting part of Cornwall-rd., for T.C. W. Law, City S. Dep. £1 1s.

JANUARY 22.

Dunbar.—Roads.—Construction of three new roads and other relative works, for T.C. D. W. Murdoch, B.E. Dep. £3 3s.

Auction Sales, Tenders, etc

JANUARY 14.

Dorchester.—Drivers, Jonas & Co., will sell, at the White Hart Hotel, Dorchester, Oxon, Freehold Residential or Business Premises, situate in High-st. and Queen-st., comprising the College premises, with 30 rooms and garden; the Institute with 7 rooms and garden; cottage and yard. Auctioneers, 7, Charles-st., St. James's-sq., S.W.1.

Watford, Herts.—Joseph Hibbard & Sons will sell, by order of the Trustee, at Balmoral-rd., Stock of Timber and New Office Furniture. Auctioneers, 15, Newington-green, Islington, N.16.

Public Appointments

JANUARY 15.

Southampton.—(1) Junior Draughtsman: (2) Junior Draughtsman; required in the C.A. Department. County Architect, The Castle, Winchester.

Wolverhampton.—Clerk of Works. B. L. McMillan, B.Sc., A.M.Inst.C.E., Water Engineer and Manager, Town Hall, Wolverhampton.

JANUARY 17.

***Blackburn.**—(*a*) Architectural Assistant; (*b*) Architectural Assistant; (*c*) Quantity Surveying Assistant; required by the Corporation. H. M. Webb, B.Sc. (Eng.), London, Assoc.M.Inst.C.E., Town Hall.

Finchley.—Town Planning Assistant (Temporary) required by U.D. Percival T. Harrison, M.Inst.C.E., 9, The Hawthorns, Regent's Park-rd., Finchley, N.3.

Nelson, Lancs.—Architectural Assistant required by the T.C. Town Clerk, Town Hall, Nelson, Lancs.

JANUARY 18.

Chelmsford.—Architectural Assistant required by the Essex C.C. Jno. Stuart, F.R.I.B.A., County Architect, Springfield Old-court, Chelmsford.

West Ham, E.15.—Assistant Building Surveyor required by the Corporation. Town Clerk, Town Hall, West Ham, E.15.

JANUARY 20.

***Birmingham.**—Engineer required by E.C. Chief Education Officer, Education Offices, Margaret-st.

JANUARY 22.

Durham — (*a*) Architectural Assistant, (*b*) Junior Architectural Assistant, required by the County Council. The Director of Education, Shire Hall, Durham.

JANUARY 24.

***Reading.**—Architectural Assistant required by the C.B. Town Clerk, Town Hall.

JANUARY 25.

***Bradford.**—(*a*) Assistant Quantity Surveyor; (*b*) Clerk of Works; required in City Architect's Department. Town Clerk, Town Hall

***India.**—Executive Architect required by Government of Punjab. Secretary, High Commissioner for India, General Department, 42, Grosvenor-gardens, S.W.1.

JANUARY 30.

London.—Principal required at the Central School of Arts and Crafts, Southampton-row, W.C.1, by the L.C.C. Education Officer (T.1). The County Hall, Westminster-bridge, S.E.1 (stamped addressed foolscap envelope necessary).

MARCH 6.

London.—Assistant Examiners: (Forthcoming Examination) in the Patent Office (20-25, with extension in certain cases). The Secretary, Civil Service Commission, Burlington-gardens, London, W.1.

PROPOSED NEW BUILDINGS & OTHER WORKS*

In these lists care is taken to ensure the accuracy of the information given, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works at the time of publication have been actually commenced. Abbreviations: T.C. for Town Council; U.D.C. for Urban District Council; R.D.C. for Rural District Council; E.C. for Education Committee; B.G. for Board of Guardians, B.C. for Borough Council; P.C. for Parish Council; M.H. for Ministry of Health; M.T. for Ministry of Transport; C.B. for County Borough; B. of E. for Board of Education, M.A.B. for Metropolitan Asylums Board; and M.W.B. for Metropolitan Water Board; Borough Surveyor, B.S.; Borough Engineer, B.E.; District Surveyor, D.S.; Clerk, C.; Town Clerk, T.C.; County Engineer, C.E.; County Surveyor, C.S.; County Architect, C.A.; Surveyor, S.; Engineer, E.; Borough Architect, B.A.; Architect, A.

Ashford.—U.D.C. approved plans by W. Bowles, architect, for 65 houses adjoining Hampden Farm.

Ashton.—R.D.C. propose parish hall at Felton Common.

Ballymoney.—New cottage hospital to be built and scheme of extension, costing about £35,000, will be undertaken at Ulster Hospital for Women and Children, Templemore-av.

Banbridge.—Workhouse to be converted into hospital.—Central school also to be erected.

Barnsley.—The Corporation obtained sanction to £69,660 for technical college.—E.C. proposed extension Grammar School, at £6,500.—Corporation propose laundry, etc., at Sanatorium.—B.E. prepared revised plans for welfare centre.—Plans approved: 8 houses, Carlton-rd., H. R. L. Potter; 4 lock-up shops, Arcade, off Market Hill, Barnsley Arcade Co.; additions, factory, Peel-st., T. Taylor & Sons, Ltd.; additions, Empire Mills, Stocks-lane, Sugden & Son.

Bath.—City Council recommend application to Electricity Commissioners for extension generating station, at £24,960.

Bath.—T.C. to make application to M.H. for £6,000 for rehousing scheme.—T.C. considered conveniences for centre of city, and favour playground at City Secondary school, and instructed City E. to prepare plans and estimates.—M.H. held inquiry into application of Council for £23,000 for new depot at Destructor yard.—Inquiry also to be held regards to £32,075 for storm water culvert, Midland-rd. to Bloomfield-rd.—Portion of retaining wall in St. Stephen's-rd. to be rebuilt, at £100.—Plans approved: extensions, Pitman's Works, Lower Bristol-rd.; depot British Petroleum Co., Lower Bristol-rd.; offices, Bath Hygienic Laundry Co., Lymore-av.

Belfast.—Infants' school in Conlig-st., at £20,000.

Belper.—R.D.C. propose 18 houses Crich, 12 Duffield, 10 Holbrooke, 10 Smalley. Cost £1,129.—Rev. Farmer, Catholic Church, proposing church at Ripley.

Birkenhead.—It was intimated during application at County Police Court, that £5,000 is to be spent in alterations at "Bridge Inn," Port Sunlight. Mr. Justin Lynskey applied on behalf of Lever Bros. Application was granted.

Birmingham.—Water Committee recommend laying mains for water in higher portions of Perry Bar area at £27,234. Also £200,000 in connection with extension leading mains and for other waterworks purposes. Committee also authorised £300,000 in connection with laying of further lengths of third main on siphon sections of Elan Aqueduct from Elan Valley to Frankley.—Public Works and Town Planning Committee recommend improvement existing Aldridge-rd., and construction bridge over River Tame be approved.—Application to be made to M.H. for £4,000,000 for housing purposes.—Proposals for building shops on Corporation housing estates be approved.—Parks Committee recommend that land adjoining Pype Hayes-pk. be developed as municipal golf course.—Bank Committee recommend purchase of land fronting Pershore-rd., Cotteridge, for branch bank premises.—Subject to approval of M.H. land at corner of College-rd. and Brackenbury-rd. be approved for branch bank premises.

Birstall.—F. Naylor proposes 32 houses, fronting Leeds-rd.

Blackpool.—T.C. approved: 14 houses, Salisbury-av., J. Cryer & Sons; 8 houses, Eaton and Fatmouth-avs., J. & S. Pilkington, Ltd.; 2 bungalows and 4 garages, Norcliffe-rd., C. E. Boden; additions, promenade, Cleveleys Hydro, Ltd.; alterations and additions, promenade, Trocadero Hotel Co., Ltd.

Blyth.—T.C. prepared scheme for water-storage reservoir at Horton, at £41,500.

Bocking.—Essex E.C. recommend £100 for fencing at Council school.

Bolton.—E.C. having plans prepared for adaptation premises, Kaye-st., as nursery school for 100 infants.—B.E. to prepare plans for extensions Moore Hall Library and Art Gallery, and construction of additional entrance from Halifax-st.

Bournemouth.—T.C. approved: Garages and stockrooms, The Grand Hotel, Firvale-rd., Imperial and Grand Hotels (Bournemouth), Ltd.; additions, bottling store, Palmerston Hotel, Christchurch-rd., Ellis & Co.; hotel and garage, junction Castle-lane and Broadway-lane, Strong & Co.

Bradford.—Contracts been let for administrative block and 4 additional ward blocks of new Bradford Royal Infirmary building at Daisy-hill. Estimated cost of section, £200,000.

Bradford.—Work is to begin as soon as possible on enlargement medicated baths section of Bradford Corporation Baths Department. Loan of £7,600 been sanctioned.

Brampton.—Brampton Utility Society intend to erect 10 or 12 more houses on new Carlisle-rd.

Cambridge.—Banking premises for Barclays Bank, Ltd., in Chesterton-rd., Chesterton. Plans by F. Skipper, F.R.I.B.A., architect, 64, St. Andrews-st.

Carlton.—Foxbrooke, Bedingfield & Grundy, F.R.I.B.A., 2, Museum-sq., Leicester, architects for church to replace the existing church of Sacred Heart, for Rev. P. Toomey

Castlewellan.—School to be erected

Cheadle (Cheshire).—J. B. Milner & Co., builders, developing estate at Broadway Wilmslow-rd., for houses.

Chelmsford.—T.C. considering plans and estimates for Widford Springfield by-pass road.

Chelmsford.—T.C. approved: 4 houses, Lynmouth-av., for W. J. Wade; extension broadcast research building, Marconi-rd., for Marconi's.

Chelmsford.—Essex E.C. recommend £5,160 for additional laboratories, etc., at County High school.

Chesterfield.—T.C. passed: New Crooked Spire Inn, Church-lane, for Brampton Brewery Co.; office off Wharf-lane, for Shell Mex, Ltd.

Cheshire.—County E.C. propose elementary school at Chapel Etchells, at £9,750; school at Kelsall, £16,000; school for Kingsley and Newtown districts, £21,500. Plans by County Architect, F. Anstead Browne, F.R.I.B.A., Newgate Chester.

Clacton-on-Sea.—Essex E.C. recommend cycle accommodation at elementary school, at £200.

Colchester.—T.C. to purchase land between Ipswich and Harwich-rds. for housing purposes.

Cookstown.—Workhouse to be converted into hospital.

County Antrim.—Schools in Ballynahinch, Rathmore, Loughmore, Glynn and Islandmagee.

Corringham.—For two classrooms at elementary school Essex E.C. recommend £2,315.

Coventry.—T.C. approved: Rebuilding premises, Smithford-st. and Vicar-lane, Marks & Spencer, Ltd.; 5 houses, Max-rd., for Neale and Parker; factory, off Holbrook-lane, for National Cork Industries, Ltd., for V. Wyles; extension to offices and experimental shop, Durbar-av., Riley (Coventry), Ltd.; 4 houses, Woodside-av., Salt & Stafford; sub-station, Butcher's-lane, Allesley, Corporation; 5 houses with shops, 5 lock-up shops and warehouse, White-st., Tuck & Blakemore, Ltd.; factory, Leicester Causeway, Godiva Hosiery Co.; 4 houses, Lavender-av., Taylor & Hickinbotham; 6 houses and garage, Gregory-av., A. Barratt; alterations premises, White-st. and Jesson-st., Goddard & Poke; 10 houses, Max-rd., P. R. Suffolk; 8 houses, Lavender-av., J. H. Cooper; 8 houses, Eden-st., J. H. Cooper; 9 houses, Three Spires-av., and house, Poole-rd., W. Colledge; 12 houses, Bassett-rd., A. Ward; 6 houses, Gregory-av., J. Bolland; 56 houses, Siddeley-av., Ives & Rushby; 9 houses, Cheveral-av. and Bede-rd., Robinson & Haddon; alterations, premises, Cox-st., Goodwin, Foster Brown, Ltd.; 7 houses, Three Spires-av., and 4 houses, Christchurch-rd., W. H. Green; alterations to cinematograph enclosure, etc., "Broadway" Cinema Theatre, Albany-rd., Messrs. Ives & Rushby; street and 6 houses, off Humber-av., for G. Farmer; extension of factory, Quinton-rd., Valves, Ltd.; sub-station, off Aldermoor-rd., Corporation; 6 houses, Aldermoor-rd., corner of Molesworth-av., Albany Building Co., Ltd.; 4 houses, Moseley-av., F. T. Clark; alterations and additions to premises, Market-st., W. Cleverley; bank premises, Walsgrave-rd., corner of Shakespeare-st., Lloyds Bank, Ltd.; office, Albany-rd., near Winifred-av., E. J. Sutton; 18 houses, Siddeley-av., T. J. Webb; 4 houses, Guphill-av., J. H. Cooper; 6 houses and garage, Gregory-av., T. Seal; 5 lock-up garages, Hertford-place, J. R. Holbrook.

Cregagh.—New church to be erected.

Criccieth.—Improvements to be made at station, for G.W.R.

Dewsbury.—C.B. approved sites for conveniences.

Doncaster.—Tenders be invited for swimming baths, etc., on site Christ Church schools at Waterdale. Plans by R. Edward Ford, architect, Priory-place.—Sanction M.H. for £59,148, for 180 houses. Intake housing estate been obtained.—Alterations, Central school.

Douglas (I.O.M.).—Corporation to commence scheme of improvements to promenade, at £42,000. Plans by Thomas H. Mawson & Sons, F.R.I.B.A., architects, 26, Victoria-st., S.W.1.

Downpatrick.—Alterations, fever hospital, at £3,500.—School also to be erected.

Dukinfield.—Amended plans for Central school off Pickford-lane, and proposed structural alterations Crescent-rd. Council school, prepared by P. Howard, A.R.I.B.A., Stamford-st., Ashton-under-Lyne, been forwarded to B.E.

East Belfast.—Messrs. Clow's premises to be rebuilt.

Folkestone.—Plans approved for two semi-detached houses, with garage, in Dover-rd., for Douglas Pope, builder, 220, Dover-rd.—16 shops with accommodation above, and 13 houses, in Sydney-st. and Ingoldsby-rd., for Douglas Pope, builder, 220, Dover-rd. Quotations invited for steelwork for shops.

*See also our List of Contracts, Competitions, etc.

Gillingham.—T.C. approved: F. B. Hooper, for C. J. Howard, 15 houses, Eastern-rd., and 2 houses, Grange-rd.

Godalming.—T.C. instructed Town Clerk to negotiate with vicar and churchwardens to purchasing land in Town End-st., for three pairs of cottages.

Gosforth.—Central school and handicraft centre at Gosforth, for Northumberland E.C. Plans by W. Tasker, architect, Moot Hall, Castle-square, Newcastle-on-Tyne.

Grays.—For purchase of site for junior school Essex E.C. recommend £820.

Great Goldham.—Essex E.C. recommend £133 for reconstruction of culvert.

Guildford.—T.C. considering library accommodation.

Guildford.—T.C. approved: Extension, generating station, Woodbridge-rd., Corporation; shops, Worplesdon-rd., R. C. Whitemore; shops and offices, Woodbridge-rd., H. J. Foot; enlargement to accommodate 300 children, Ludlow-rd. schools, Managers of St. Nicolas school.

Halesowen.—Elementary school, for E.C. Surveyor, G. Spaw, Great Corngow.

Halifax.—Corporation approved widening Huddersfield-rd. at £23,300, and widening King Cross-lane at £16,500.

Harling.—Norfolk C.C. approved £1,040 for court accommodation at East Harling.

Harrogate.—Plans amalgamation two schools, Ashville College and New College, given by J. T. Lancaster, headmaster, Ashville, who stated that it was proposed to spend between £60,000 and £70,000 in erection of houses of recognised public school type to give accommodation for about 250 boys. Immediate development is to be erection swimming bath at Ashville in memory of first headmaster, Dr. Richardson.

Harold Wood.—For four classrooms, etc., at Church-rd. school, for Essex E.C., at £4,829.

Harworth.—Notts C.C. proposing elementary school for 500 children, Milne-rd., Bircotes. Plans by County Architect, L. Maggs, F.R.I.B.A., Shire Hall, Nottingham.

Hendon.—Council propose £20,000 on refuse destructor works extensions.

Hove.—T.C. approved: Hunter & Bedford, for T. J. Braydon & Son, 12 semi-detached houses and 11 garages, Milcote-av.; E. Gladman, 18 semi-detached houses and garages, Old Shoreham-rd and Amherst-crescent; W. F. Andrews, for E. Davis, 2 pairs semi-detached houses, St. Keyna av.; W. T. Cripps, for Brighton Bros., new stores Davigdor-rd.

Jarrow.—E.C. to build central school for 400 boys and girls; convert present central school into a senior school for 520 boys; convert present Grange Boys' school into senior school for 320 girls; extend domestic science central school; convert Croft-ter. mixed school into senior school for 320 boys; convert Croft-ter. infants school into senior school for 480 girls and new block of buildings at Croft-ter. for handicrafts and domestic science; convert Bede Burn school into infants' school for 286 infants; construct junior mixed school in grounds of Bede Burn school for 300 boys and girls.

Laindon.—For additional classrooms at High-rd. school, Essex E.C. recommend £9,487.

Lancaster.—Building programme of E.C. includes rebuilding Skerton Council school and extension of the Marsh Council school and open-air school, to cost £24,500.—Managers St. Peter's R.C. school to undertake extension scheme.—Land been acquired on Newton Estate as site for mission hall.

Langport.—R.D.C. to erect 12 houses of non-parlour type at Somerton, subject to M.H. approval.

Leeds.—Wm. T. Lancashire, Municipal-buildings, Calverley-st., submitted plans to T.C. for adaption of lodge at Oakwood entrance at Roundhay Park for providing accommodation for dressing for teams playing on Military Field. Cost £200.

Leicester.—Corporation about to construct new abattoirs, between £4,000 and £5,000.

Leyton.—T.C. approved scheme of road reconstruction involving £78,800.

Limerick.—Tenders invited for reconstruction City Home and Hospital, at £6,000. Sheahan & Clery, architects, 101, O'Connell-st.

London (Brixton).—L.C.C. arranged for B.C. to widen Acre-lane, at £48,000

London (Camberwell).—B.C. passed plans: W Smith (Camberwell), Ltd., lock-up garages, Harvey-rd.; H. W. Cash, shops at 118, Peckham Rye, abutting on Kinsale-rd.

London (Wimbledon).—B.C. approved: Pitt & Son, lock-up garages, rear 50, Griffiths-rd.; T. Roker, extensions, Oakhill School, 29, Edge-hill; G. W. Beattie, Ltd., 6 shops with living accommodation, Durnsford-rd., Gordondale-rd. and Mountrd.; A. M. L. McKay, 4 houses, 24, 30, 32 and 34, Dunstall-rd.; A. M. L. McKay, office in Railway Station yard, Wimbledon.

Lurgan.—Workhouse to be converted into hospital.

Luton.—Bakery premises for Luton & District Co-operative Society, Ltd.

Macclesfield.—R.S. prepared plans for 98 houses for Moss Rose site.

Maesglas.—Additional accommodation at Junction Station, for G.W.R.

Mansfield.—Site acquired at Chesterfield-rd to provide for fire station and firemen's house. Plans approved for pavilion and caretakers' cottage at Race Course, at £1,950.

Market Bosworth.—Site presented to members Catholic Church for edifice.

Malbotham.—Factory is to be erected and sidings, by G.W.R.

Newcastle-upon-Tyne.—Recommendation will be made to City Council that the Singleton House site be leased to London firm, which proposes to build shops and office buildings.

Newton Abbot.—M.H. held inquiry into application of U.D.C. for provisional order to acquire land at Buckland Barton, for sewage outfall works; and for £39,000 for works of sewerage and sewage disposal.

Newtownards.—Workhouse to be converted into hospital.—New school at £25,000.

Northampton.—Application to be made by T.C. to M.H. for grant towards extensions of St. Saviour's Home, Kingsthorpe.—B.E. submitted plans for main drainage scheme for St. James' district, cost, £57,475.—Also scheme for outfall sewer and sewage disposal recommended by Council, at £104,000.—Plans passed: Extension to cinema hall, Alcombe-rd., and Grove-rd., for —, Norfolk; 4 lock-up garages, Brookland-rd., rear Kettering-rd., for C. H. Rainbow; extension boot and shoe factory, Barry-rd., J. Sears & Co. (True Form Boot Co.), Ltd.; reconstruction shop premises, 16-20, Gold-st., Montague Burton, Ltd.

Northfleet.—Plans passed: 12 houses, Percy-st., for Mr. Bevan

Nottingham.—E.C. approved school clinic on Forest Fields School site.

Nottingham.—Managers of Our Lady and St. Patrick's school, London-rd., submitted plans to B.E. for alterations school premises. Managers also secured site Sneinton-dale school for 250 scholars.

Nottinghamshire.—Some 80 miles of main roads scheduled for widening, and where necessary by-passes will be constructed, bridges rebuilt, and level crossings abolished. On Great North-road, section about 30 miles long, from Bawtry to south of Newark, being widened. Cost, £1,000,000.

Okehampton.—Southern Railway station is to be reconstructed.

Oldham.—E.C. decided to proceed with school on Limeside estate and new open-air school.

Oxford.—City E. prepared lay-out of portion of Cutteslowe estate, for houses.—H.M.O.W. obtain lease of site from T.C. of 56-64, George-street, 12, Worcester-place, and 19 and 20, Dispensary-rd., for building purposes.—Application to be made to M.H. for £2,370 for classrooms at East Oxford Council infants' school and South Oxford Council infants' school.—Plans passed: Motor house in Henry-rd. by Oxford Co-operative and Industrial Society, Ltd.; church at junction of George-st. and Squitchey-lane, Summertown; sub-station in High-st., Old Headington, for Oxford Electric Co., Ltd., Russell-st.

Pinsey.—Essex C.C. recommend £2,084 for reconstruction of bridge.

Plympton.—Proposed to perpetuate memory of Dr. Keily, late Roman Catholic Bishop of Plymouth, by erecting memorial church. Negotiations proceeding for site, and an architect is being engaged.

Portaferry.—School to be built.

Prescall.—U.D.C. proposing developments Knott End, S. been instructed to prepare scheme of Esplanade.

Rayleigh.—For enlargement of school Essex E.C. recommend £10,693.

Retford.—T.C. adopted recommendation of Housing Committee to build 28 houses on Leafield-rd., Hallcroft estate.

Ripon.—City Council agreed to apply to M.H. for sanction to borrow £7,000 for extension of Corporation's building scheme.

Rochdale.—E.C. propose school building programme to cost £38,000.

Rochester.—Council bought 300 acre estate for houses and allotments.

Rochford.—Essex E.C. recommend purchase of site, at £1,640, for central school.

Romford.—Additional classrooms for Essex E.C. at £2,497.—Two classrooms, etc., at Salisbury-rd. Council school, at £4,485.

Rotherham.—T.C. approved: G. Bilton, Ledsham-rd., 5 pairs semi-detached dwelling-houses; P. Wood, Psalters-lane, 4 lock-up motor garages.

Rotherham.—E.C. propose additions South-grove and Kimberworth-rd. central schools. Plans by B.E.—B.E. submitted report with regard to reconstruction bridges in Bridge-st.—Alterations at Wickersley sub-station, at £600.—T.C. propose reconstruction existing buildings into new offices, shops and showrooms and workshops, at £23,000. Plans by B.E.

Rowley Regis.—Plans passed: T. W. Lench, Ltd., extensions work Yew Tree-lane, Blackheath; shop extensions, Lawrence-lane, Old Hill, D. Sedgley & Son.

Rugby.—U.D.C. approved: Extension Crescent Hotel, for Mrs. Wilmot; alterations, Northfield House, for Northfield Nursing Home, Ltd.; two additional classrooms, for Eastlands Boys' School, for Warwickshire C.C.

St. Albans.—City Council decided to acquire acre of land for further housing scheme and to purchase from Prison Commissioners St. Albans Prison, for use as highways depot.

Saddleworth.—D. Balfour & Sons, civil engineers, 3, St. Nicholas-buildings, Newcastle-on-Tyne, been appointed to prepare scheme in connection with purification of River Thame, at £100,000.

Scarborough.—T.C. approved plans cliff lift, north side of Scarborough, and further improvements near Alexandra-gardens, overlooking sea. Cost of the lift £8,000, and other improvements £4,000.

Sheffield.—Sheffield and Ecclesall Co-operative Society, Ltd., Ecclesall-rd., acquired site Hutcliffe Wood-rd. for store. Premises also acquired in Winter-st. for alterations into grocery and butchery store. Plans by Architect's Department, Co-operative Wholesale Society, Balloon-st., Manchester.

Sheffield.—T.C. approved: 18 houses, Carter Knowle-rd., A. J. Belton; 145 houses (Scheme 18), Longley estate, Corporation; 4 houses and shops Richmond-rd., W. & E. Sadler, Ltd.; 6 houses, Endowood-rd., T. H. Bailey; 4 houses and 26 garages, Dixon, Dorothy and Lennox-rds., M. Simpson Junior; 20 houses, Ridgeway-rd., Corporation.

Sheffield.—Corporation proposing building for accommodation blind persons. City Architect.

Somerset.—C.C. propose building extensions at Mid-Somerset Smallpox Hospital, at £1,500.

Southend.—Site been acquired junction High-st. and Weston-rd. by Lloyds Bank, Ltd., for extensions. J. Priestley Briggs, F.R.I.B.A., architect, 1, Arundel-st., Strand, London, W.C.2.

Southport.—Plans being drawn up for ice palace, which could be adapted as public and conference hall capable of seating over 7,000 persons.

Southport.—Managers Holy Trinity School proposing alterations school premises.—Improvements proposed to St. John's School, Birkdale.

Stockport.—E.C. to provide 4 senior schools and 2 junior schools, at £177,160. S. Hamer, B.S.

Stoke-on-Trent.—Extensions to Orthopædic Hospital, Longfield, Hartshill, for North Staffordshire Cripples' Society, at £20,000. Plans by Wood & Goldstraw, A.R.I.B.A., architects, Town Hall-buildings, Tunstall.

Stourport.—G.W.R. erecting factory at station.

Sutton and Cheam.—U.D.C. approved: Vicarage, for St. Philips Church, in Cheam Common-rd.; and public hall in Station-rd., Belmont.

Swindon.—Offices at works to be improved, for G.W.R.

Taunton.—Somerset C.C. propose county offices, at £10,000.

Thornton Cleveleys.—Plans passed: additions, social club, Fleetwood-rd., for the I.C.I.; 6 houses and garages in Cleveleys-avenue, J. Wolstenholme, Ltd.; 22 houses and garages, Chester-av., Northdrive, J. Cryer & Sons

Tipton.—U.D.C. negotiated for purchase site for elementary school, and received from agents Tipton Land Co., Ltd., offer to sell land, approximately 3½ acres, at rear of Locarno-rd. Subject to approval of B. of E. and sanction of M.H., land be purchased.—For 24 parlour-type and 62 non-parlour type houses in Horseley-rd. Council recommended, subject to M.H., houses be erected by direct labour, and application be made to borrow £33,000.

Torquay.—M.H. held inquiry into application of T.C. for sanction to borrow £13,600 for provision public swimming baths at Upton.

Twickenham.—T.C. approved lay-out of Whilton estate.

Uttoxeter.—High Peak Electricity Co. to erect sub-station, Abbotts Bromley.

Uxbridge.—Mr. Eves, architect, Uxbridge, submitted lay-out plan housing site Cowley Hall estate, providing for 58 houses. Plans approved and forwarded to M.H.—Council to consider advisability of purchasing Hillingdon House Farm estate for erection of houses.—Plans passed. Hercies-rd., Hillingdon, 2 pairs semi-detached houses, H. V. Meeckoms; Dickens-av., Hillingdon, 4 pairs semi-detached houses, J. H. Slade; Parkfield-av., Hillingdon, 8 houses, G. Young; junction of Harefield and Moorhall-rds., Harefield, premises, E. A. Clark.

Wallasey.—Tender accepted by Works Committee for yacht clubhouse, bandstand, conveniences, and kiosks on New Brighton Promenade Pier, for £2,133.

Walthamstow.—T.C. approved: 10 houses, Penrhyn-av., Law Land Building Department; shop, store and house, 32 and 34, Blackhorse-lane, J. and J. Stewart; alteration, Queen's Cinema, Hoe-st., T. J. S. Blake.

Welwyn.—R.D.C. approved plans for public hall and offices and to apply for loan of £12,000.

Wembley.—U.D.C. considering ten sites for houses.

Wembley.—U.D.C. approved: Woodward & Co., house, Twickenham-gardens, and 8 in Northwick-gardens; W. J. Shirley & Co., 8 houses, Sudbury Heights-av.; W. J. Shirley & Co., house and garage, Woodhill-crescent; R. Lancaster & Sons, 7 houses in Sudbury Heights-av. and Northwood-gardens; Haymills, Ltd., 8 houses, 2-16, Midholm; Wembley Lawn T.C., extension to pav., Sylvester-rd.; F. W. Cooke, 4 houses, Oxenpark-av.; R. Biffa, office and sheds, Wembley Hill-rd.

Weston-super-Mare.—Police station on Whitecross Nurseries site opposite Town Hall. Plans by E. Stead, C.S., 49, High-st.

West Markham.—Scheme on foot for restoration Parish Church. Plans by N. M. Lane, Cooke, Howard & Lane, architects, Brunt's-chambs., Leeming-st., Mansfield.

Whitland.—United Dairies, Ltd., extending factory.

Whitton.—Middlesex C.C. to build two new schools for 1,520 children.

Wickford.—Classrooms at Council school, for Essex E.C., at £4,513.

Winchester.—T.C. received M.H. sanction to £20,608 for 50 houses at St. Martin's-close.—60 houses to be built in Midland-rd.

Worcester.—City Council contemplate spending £40,000 on widening Severn Bridge and improvement of North Parade.

Worcester.—E.C. prepared preliminary plans for improvements Council school at Sidemoor.

Worcestershire.—C.C. prepared further scheme of road improvements estimated to cost £252,000.

Yeovil.—Additional accommodation at Town Station, for G.W.R.

York.—Funds being raised for Church of English Martyrs, Blossom-st., for Rev. J. P. Richardson, at £10,000.

PRICES CURRENT OF MATERIALS.*

Owing to the exceptional circumstances which prevail at the present time, prices of materials should be confirmed by inquiry.

BRICKS, &c.

Per 1,000 Alongside, in River Thames up to London Bridge.

	£ s. d.
Best Stocks	4 3 6
Second Hard Stocks	3 18 6

Per 1,000. Delivered at London Goods Stations.

	£ s. d.		£ s. d.
Flettons, at King's Cross	2 12 3	Best Blue Pressed Staffs	9 5 0
Do., grooved for Plaster ...	2 14 3	Do. Bullnose ...	9 15 0
Do., Bullnose...	3 7 3	Blue Wire Cuts	7 5 0

Best Stourbridge Fire Brick :—

2½ in.	8 11 0	3 in.	10 2 0

GLAZED BRICKS—

Best White Ivory, and Salt Glazed Stretchers ...	21 0 0	D'ble Str'tch'rs	29 10 0
		D'ble Headers...	26 10 0
		One Side and two Ends ...	30 10 0
Headers ...	20 10 0	Two Sides and one End ...	31 10 0
Quoins, Bullnose and 4½ in. Flats ...	27 10 0	Splays, and Squints ...	28 0 0

Second Quality, £1 per 1,000 less than best. Cream and buff, £2 extra over white. Other colours. Hard Glaze, £5 10s. extra over white.

BREEZE CONCRETE SLABS

Delivered London

	s. d.		s. d.
2 in. per yd. super.	1 11	3 in per yd. super	2 9
2½ in. „ „	2 4	4 in. „ „	3 0

	s. d.		
Thames Ballast	9 9	per yd.	delivered 2 miles radius Paddington.
Pit Sand	12 0	„ „	
Thames Sand	12 0	„ „	
Best Washed Sand	12 6	„ „	
½ in. Shingle for Ferro-Concrete	11 6	„ „	
¼ in.	12 0	„ „	
½ in. Broken Brick	11 6	„ „	
Pan Breeze	8 0	„ „	

Per ton delivered in London area in full van loads.

Best Portland Cement. British.

Standard Specification. Test £2 6 6 to £2 8 0

28s. alongside at Vauxhall in 80-ton lots.

Ferrocrete per ton extra on above	0 7 6
Vitrocrete „ „	0 7 6
Super Cement (Waterproof)	3 16 0
Roman Cement	8 15 0
Parian Cement	5 15 0
Keene's Cement, White	5 15 0
„ „ Pink	5 10 0
Plaster, Coarse, Pink	3 0 0
„ „ White	3 12 6
„ Fine	5 12 0
Strapite, Coarse	3 0 0
„ Finish	3 17 0
Grey Stone Lime	2 10 9
Chalk Lime	2 10 9
Best Ground Blue Lias Lime	1 17 6
Hair per cwt.	2 2 6
Granite Chippings	1 12 0

NOTE.—Sacks are charged 1s. 9d. each and credited 1s. 6d. if returned in good condition within three months carr. pd.

Stourbridge Fireclay in s'cks 37s. 6d. per ton at rly. dp.

STONE.

	s. d.
BATH STONE.—Delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R., per ft. cube	2 10
BEER STONE—RANDOM BLOCK— Free on rail at Seaton Station per ft. cube	2 3
Delivered free on rail Nine Elms, S.R. per ft. cube	3 1½
Selected approximate size one way, 1d. per cubic foot extra; selected approximately three sizes or for special work, 3d. per cubic foot extra.	
PORTLAND STONE.— Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Nine Elms, S. Rly., South Lambeth Station, G.W.R., and Westbourne Park, Paddington, G.W.R., per ft. cube	4 4½
Do. do. delivered on road wagons at above stations, per ft. cube	4 5½
White basebed, 3d per ft. cube extra.	
NOTE.—1d. per ft. cube extra for every foot over 20 ft. *average*, and ½d. beyond 30 ft.	
HORTON-WOOD STONE.— F.O.R. Quarries, Wirksworth, Derbyshire.	s. d.
Random blocks from 10 ft. and over P. ft. cb.	14 0
Sawn two sides per ft.	22 6
Sawn three or four sides „	27 6
YORK STONE, BLUE—*Robin Hood Quality.* Delivered at any Goods Station, London.	
6 in. sawn two sides landings to sizes (under 30 ft. super) Per ft. super	5 6
6 in. rubbed two sides, ditto „	6 0
3 in. sawn two sides slabs (random sizes) „	2 3½
2 in. to 2½ in. sawn one side slabs (random sizes) „	1 6½
1½ in. to 2 in. ditto, ditto „	1 3½
HARD YORK— Delivered at any Goods Station, London.	
Scappled random blocks Per ft. cube	6 3
6 in. sawn two sides landing to sizes (under 40 ft. super) Per ft. super	5 1½
6 in. rubbed two sides, ditto „	6 1½
4 in. sawn two sides slabs (random sizes) „	2 1½
3 in. ditto ditto „	2 10
2 in. self-faced random flags Per yd. super	5 6

CAST STONE.

Delivered in London area in full van loads, per ft. cube: Plain, 8s. 6d.; Moulded, 9s. 6d.; Cills, 10s. 0d.

WOOD.

GOOD BUILDING DEAL.

Inches.	per stan.	Inches.	per stan.
4 × 11	£30 0	2 × 6	£21 0
4 × 9	26 0	3 × 11	25 0
4 × 8	25 0	2 × 11	26 0
4 × 7	23 0	3 × 9	24 0
3 × 8	22 0	2½ × 9	24 0
3 × 7	22 0	3 × 4½	21 0
2½ × 7	21 0	3 × 4	21 0

PLANED BOARDS.

1 × 11	£30 0	1 × 9	£28 0

PLAIN EDGE FLOORING

Inches.	per sq.	Inches.	per sq.
⅝	18/-	1¼	30/-
¾	21/-	1½	34/-
1	24/-		

TONGUED AND GROOVED FLOORING

Inches.	per sq.
1	24/-
1¼	30/-
1½	34/-

MATCHING (BEST).

Inches.	per sq.
⅝	16/6
¾	19/-
1	24/-

BATTENS. s. d.

2 × 2 per 100 ft.	2 6

SAWN LATHS. s. d.

Per bundle	2 6

1" AND UP THICK.

	£ s. d.	£ s. d.
Dry Austrian Wainscot, per ft. cube	0 16 0	to 0 18 0
Dry American and/or Japanese Figured Oak, ft. cube	0 14 0	to 0 15 0
Dry American and/or Japanese Plain Oak, ft. cube	0 10 0	to 0 13 0
Dry sq. edged Honduras Mahogany, ft. cube	0 15 0	to 0 18 0
Dry Log cut Honduras Mahogany, ft. cube	0 16 0	to 1 1 0
Dry Cuba Mahogany, ft. cube	1 1 0	to 1 10 0
Dry Teak, ft. cube	0 13 0	to 0 15 0
Dry American Whitewood, ft. cube	0 10 0	to 0 14 0
Best Scotch Glue, per cwt.	4 10 0	to —
Liquid Glue, per cwt.	4 7 0	to 5 10 0

SLATES.

First quality slates from Bangor or Portmadoc carriage paid in full truck loads to London Rate Station. Per 1,000.

	£ s. d.		£ s. d.
24 by 12	32 18 4	18 by 10	18 12 11
22 by 12	29 17 11	18 by 9	16 9 2
22 by 11	27 14 2	16 by 10	15 12 6
20 by 12	26 5 0	16 by 8	12 3 9
20 by 10	22 10 0		

TILES.

Delivered at London rate stations in full truckloads of not less than 6 tons. Per 1,000. f.o.r. London.

Best machine-made tiles from Broseley or Staffordshire district	£5 7 6
ditto hand-made ditto	5 17 6
Ornamental ditto	6 2 6
Hip and valley tiles (per dozen) { Hand-made	0 9 6
{ Machine-made	0 9 0

METALS.

JOISTS, GIRDERS, &c., TO LONDON STATION, PER TON—

R.S. Joists, cut and fitted	£12 10 0
Plain Compound Girders	14 10 0
„ Stanchions	16 10 0
In Roof Work	19 10 0

MILD STEEL ROUNDS.—To London Station, per ton

Diameter.	£ s. d.	Diameter.	£ s. d.
¼ in.	12 0 0	⅝ in. to ½ in.	10 15 0
⅜ in.	11 0 0	⅝ in. to 2¼ in.	10 10 0

WROUGHT-IRON TUBES AND FITTINGS—

(Discount off List for lot of not less than £7 net value delivered direct from Works, 2½ per cent. less above gross discounts, carriage forward, if sent from London Stocks.)

	Tubes. Wrought Mild Steel.	Tubes. Genuine Staffs. Iron.	Fittings. ¼ in. and under.	Fittings. Over ¼ in.	Flanges. ¼ in. and under.	Flanges. Over ¼ in.
	%	%	%	%	%	%
Gas	65	52½	45	47½	55	57½
Water	61½	48½	40	42½	50	52½
Steam	57½	45	35	37½	45	47½
Galv. gas	52½	40	35	37½	45	47½
Galv. water	47½	35	30	32½	40	42½
Galv. steam	42½	30	25	27½	35	37½

*C.I.—HALF-ROUND GUTTERS—London Prices ex Works

Per yd. in 6 ft. lengths	Gutters.	Angles and Nozzles.	Stop Ends.
3 in.	10d.	7½d.	2½d.
3½ in.	10½d.	8½d.	2½d.
4 in.	10½d.	9½d.	2½d.
4½ in.	11½d.	10½d.	2½d.
5 in.	1/1½	11½d	3½d.

*O.G. GUTTERS.

3 in.	1/0	10½d	2½d.
3½ in.	1/0½	10½d	2½d.
4 in.	1/1½	10½d	2½d.
4½ in.	1/2½	1/0½	2½d.
5 in.	1/5	1/2½	3½d.

*RAIN-WATER PIPES, &c.

Per yd. in 6 ft.	Pipe.	Bends, stock angles.	Branches, stock angles.
2 in. plain	1/2½	9½d.	2
2½ in. „	1/3	10½d.	1/4½
3 in. „	1/6½	1/1½	1/8½
3½ in. „	1/11	1/4½	1/11½
4 in. „	2/2½	1/7½	2/4½

*The above R.W. Goods prices are subject to an advance of 5% from October 29th, 1929.

L.C.C. COATED SOIL PIPES—London Prices ex Works.

	Pipe. s. d.	Bends, stock angles. s. d.	Branches, stock angles. s. d.
2 in. per yd. in 6 fts. plain	2 5	1 9	2 1
2½ in. „	2 9½	1 10½	2 7
3 in. „	3 0	2 1	3 1
3½ in. „	3 3	2 7	3 7
4 in. „	3 8	2 11	4 1½

L.C.C. COATED DRAIN PIPES—London Prices ex Works

	Bends, stock angles. s. d.	Branches, Pipe, angles, stock angles. s. d.
3 in. per yd. in 9ft. lengths	3 6	4 6 7 6
4 in. „ „	4 8	5 5 9 3
5 in. „ „	6 3	9 6 15 0
6 in. „ „	7 3	11 6 19 0

Gaskon for jointing 41/- per cwt.

IRON—	Per ton in London. £ s. d.		£ s. d.
Common bars	11 0 0	to	12 0 0
Staffordshire Crown Bars—Good merchant quality	11 10 0	to	12 10 0
Staffordshire Marked Bars	14 0 0	...	15 0 0
Mild Steel Bars	10 0 0	...	11 0 0
Steel bars, Ferro-Concrete quality, basis price	10 0 0	...	11 0 0
Hoop iron, basis price	11 10 0	...	12 10 0
„ Galvanised	27 0 0	...	28 0 0
Soft Steel Sheets, Black— Ordinary sizes, to 20 g.	13 0 0	...	14 0 0
„ „ „ 24 g.	14 0 0	...	15 0 0
„ „ „ 26 g.	16 0 0	...	17 0 0
Sheets Flat Best Soft Steel, C.R. and C.A. quality— Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	15 0 0	...	16 0 0
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 22 g. and 24 g.	16 0 0	...	17 0 0
Ordinary sizes, 6 ft. by to 3 ft. to 26 g.	18 0 0	...	20 0 0
No. 1 quality £4 per ton extra.			
Flat and Galvanised Corrugated Sheets— Ordinary sizes, 6 ft. to 9 ft. to 20 g.	16 10 0	...	17 0 0
Ordinary sizes, 6 ft. to 9 ft. to 22 g. and 24 g.	17 0 0	...	18 0 0
Ordinary sizes, 6 ft. to 9 ft. to 26 g.	20 0 0	...	21 0 0
Sheets Galvanised Flat, Best quality— Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	21 0 0	...	22 0 0
Best Soft Steel Sheets, 22 g. and 24 g.	23 0 0	...	25 0 0
Best Soft Steel Sheets, 26 g.	24 10 0	...	25 10 0
Cut Nails, 3 in. to 6 in.	18 0 0		

(Under 3 in. usual trade extras.)

METAL WINDOWS.—Standard sizes, suitable for complete houses, including all fittings, painting two coats, and delivery to job, average price about 1s. 4d. to 1s. 7d. per foot super.

LEAD, &c.

(Delivered in London.)	£ s. d.
LEAD—Sheet, English, 4 lb. and up	30 5 0
Pipe in coils	30 15 0
Soil pipe	33 15 0
Compo pipe	34 15 0
Old lead, ex London area, at Mills per ton	20 0 0

NOTE.—Country delivery, 20s. per ton extra; lots under 3 cwt. 3s. per cwt. extra, and over 3 cwt. and under 5 cwt., 1s. 6d. per cwt extra. Cut to sizes, 5s. cwt. extra.

COPPER.

	s. d.
Seamless Copper tubes (basis) per lb.	1 3
Strong sheet „	1 0
Thin „	1 1
Copper nails „	1 11
Copper wire „	2 0

PLUMBERS' BRASS WORK.

Delivered in London.

NEW RIVER PATTERN SCREW DOWN BIB COCKS FOR IRON.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
29/-	45/-	76/-	153/-	245/-	510/- per doz.

NEW RIVER PATTERN SCREW DOWN STOP COCKS AND UNIONS.

¼ in.	½ in.	1 in.	1¼ in.	1½ in.	2 in.
41/6	62/-	92/-	174/-	300/-	588/- per doz.

RIVER PATTERN SCREW DOWN MAIN FERRULES.

½ in.	¾ in.	1 in.
39/6	60/-	116/- per doz

CAPS AND SCREWS.

¼ in.	½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
7/6	10/-	14/-	23/-	30/-	42/- per doz.	

DOUBLE NUT BOILER SCREWS.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
7/6	11/-	17/-	29/-	36/-	63/- per doz.

BRASS SLEEVES.

1½ in.	2 in.	3 in.	3½ in.	4 in.
10/-	12/-	20/-	24/-	31/- per doz.

NEW RIVER PATTERN CROYDON BALL VALVES, S.F.

¼ in.	½ in.	1 in.	1¼ in.	1½ in.
35/	53/	68/-	102/-	224/- per doz.

DRAWN LEAD P. & S TRAPS WITH BRASS CLEANING SCREW.

	1½ in.	1½ in.	2 in.	3 in.
8 lbs. P. traps	33/-	41/-	56/-	101/- per doz.
8 lbs. S. traps	35/-	45/-	66/-	126/- „

TIN.—English Ingots, 2/3 per lb. SOLDER.—Plumber's 1/-, Tinman's 1/2. Blowpipe 1/3 per lb.

PAINTS, &c.

Raw Linseed Oil, in pipes	per gallon	0	4 2
„ „ „ in barrels	„	0	4 4
„ „ „ in drums	„	0	4 6
Boiled „ „ in barrels	„	0	4 6
„ „ „ in drums	„	0	4 9
Turpentine in barrels	„	0	3 10
„ „ in drums (10 galls)	„	0	4 0
Genuine Ground English White Lead, per ton (In not less than 5-cwt. casks.)		51	0 0

Extra for 1-cwt. kegs over 5-cwt. casks 5/0 cwt.

* The information given on this page has been specially compiled for THE BUILDER, and is copyright. The aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

PRICES CURRENT OF MATERIALS (*contd.*)

PAINTS, &c. (*contd.*)

		£	s.	d.
GENUINE WHITE LEAD PAINT. "Father Thames," "Nine Elms," "Park," "Supremus," "St. Paul's," "Morganwyte," "Polseco," "J" Brand, and other best brands (in 14-lb. tins) not less than 5 cwt. lots ... per ton delivered		73	10	0
Red Lead, Dry (packages extra)	per ton	40	0	0
Best Linseed Oil Putty	per cwt.	0	15	6
Fillicel	"	0	15	6
Zinc, XD quality	ton.	0	3	0

GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

	Per ft.		Per ft.
15 oz. fourths ...	2½d.	22 oz. fourths ...	6½d.
15 " thirds ...	3½d.	22 " thirds ...	9d
21 " fourths ...	3½d.	Obscured Sheet, 15 oz.	2½d.
21 " thirds ...	4½d.	" " 21 oz.	4½d.
26 " fourths ...	4½d.	Fluted, 15oz. 3½d., 21oz.	6d.
26 " thirds ...	6½d.	En'lled, 15oz. 4½d., 21oz.	6d.

Extra price according to size and substance for squares cut from stock.

ENGLISH ROLLED plate in CRATES OF STOCK SIZES.

	Per ft.
¼ Rolled plate	4½d.
⅜ Rough rolled	5½d.
Rough rolled	5½d.
Figured Rolled, Baltic, Oceanic, Arctic Skippriyte, and small and large Flemish White...	5½d.
Ditto, tinted	8½d.
Rolled Sheet	4½d.
White Rolled Cathedral	4½d.
Tinned do.	6½d.

Cast plate is same price as rough rolled.

VARNISHES, &c.

		Per Gallon. £	s.	d.
Oak Varnish	Outside	0	14	0
Fine ditto	ditto	0	16	0
Fine Copal	ditto	0	18	0
Pale Copal	ditto	1	0	0
Pale Copal Carriage	ditto	1	4	0
Best ditto	ditto	1	12	0
Floor Varnish	Inside	0	13	0
Fine Pale Paper	ditto	0	18	0
Fine Copal Cabinet	ditto	1	2	6
Fine Copal Flatting	ditto	1	0	0
Hard Drying Oak	ditto	0	18	0
Fine Hard Drying Oak	ditto	0	19	0
Fine Copal Varnish	ditto	1	0	0
Pale ditto	ditto	1	12	0
Best ditto	ditto	1	2	6
Best Japan Gold Size		0	12	6
Best Black Japan		0	10	0
Oak and Mahogany Stain (water)		0	12	0
Brunswick Black		0	7	6
Berlin Black		0	14	0
Knotting (patent)		1	5	0
French and Brush Polish		0	17	0
Liquid Dryers in Turpbine		0	9	0
Cairan Black Enamel		0	7	0

NEW BUILDINGS IN SCOTLAND

The Editor would be glad to receive information for publication under this heading from architects, builders, or other persons concerned. Items should be received at THE BUILDER *office not later than Tuesday evening.*

Berwick.—SCHOOL.—The Town Council has decided to sell a plot of land for the erection of a new Catholic school at Tweedmouth to Father John McHugh, of St. Cuthbert's Church, Berwick.

Findochty.—HOUSES.—A dozen new municipal houses are to be built by the Town Council of Findochty, Banffshire.

Dunblane.—BRIDGE.—The question of a new bridge over the River Allan at Dunblane, to relieve the traffic in the narrow High-street and to avoid the dangerous turns on the New-road, has been advanced a stage following a joint meeting of Town and County Council representatives. At this meeting Provost Chick suggested that a bridge should be erected over the river to the south of the "Stirling Arms" Hotel.

Dundee.—BUILDINGS.—Plans and sections of the following proposed new buildings, etc., have been lodged at the office of the City Engineer:—Arthurstone-terrace—alterations for Messrs. Malcolm, Ogilvie & Co., Ltd. (Messrs. Johnston & Baxter, architects, 114, Seagate); Caird-avenue—houses for the Town Council; Fairmuir-street—pavilion for Fairfield Bowling Club (Mr. Joseph Johnston, architect, 32, Bank-street); Lawton-road—school for the Education Authority (Messrs. Allan & Friskin, architects, 26, Castle-street); Roseangle—alterations for Dundee ex-Service Men's Welfare Club, Ltd. (Mr. W. M. Patrick, architect, 26, Yeamon Shore); Trades-lane—w.c. for Angus Garage Co., Ltd. (Mr. W. M. Wilson, architect, 61, Meadowside); and Dundee area—towers for the Central Electricity Board.

BUILDING TRADE WAGES IN SCOTLAND*

The following are the present rate of wages in the building trade in the principal towns of Scotland. Every endeavour is made to ensure accuracy, but we cannot be responsible for errors that may occur.

	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Labourers—‡ Masons'; † Bricklayers'; Plasterers'
Aberdeen	1/7½	1/7½	1/7½	1/8½	1/7½	1/7½	1/8	‡1/2½ †1/2½
Airdrie	1/7½	1/7½	1/7½	1/8½	1/7½	1/7½	1/8	‡1/2½ †1/2½
Alexandria	1/7½	1/7½	1/7½	1/8½	1/7½	1/7½	1/8	‡1/2½ †1/2½
Arbroath	1/6½	1/6½	1/6½	1/7½	1/6½	1/6½	1/6½	1/1
Ayr	1/7½	1/7½	1/7½	1/8½	1/7½	1/7½	1/8	1/2½
Bathgate	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/6½	1/2 to 1/8
Blairgowrie	1/7	1/7	1/7	1/7½	1/8	1/7	1/4	10d. to 1/–
Bo'ness	1/7½	1/7½	1/7½	1/8½	1/7½	1/7½	1/8	‡1/2½ †1/2½
Coatbridge	1/7½	1/7½	1/7½	1/8½	1/7½	1/7½	1/8	‡1/2½ †1/2½
Dumbarton	1/7½	1/7½	1/7½	1/8½	1/7½	1/7½	1/8	‡1/2½ †1/2½
Dumfries	1/6½	1/6½	1/6½	1/7½	1/6½	1/6½	1/6½	1/2
Dundee	1/7½	1/7½	1/7½	1/8½	1/7½	1/7½	1/8	‡1/3 †1/2½
Dunfermline	1/7½	1/7½	1/7½	1/8½	1/7½	1/7½	1/7½	‡1/2½ †1/2½
Edinburgh	1/7½	1/7½	1/7½	1/8½	1/7½	1/7½	1/8	‡1/3½ †1/2½
Falkirk	1/7½	1/7½	1/7	1/8	1/7	1/7	1/6½	1/2½
Fort William	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/2
Galashiels	1/6½	1/7	1/8½	1/7	1/6½	1/6½	1/7	1/2
Glasgow	1/7½	1/7½	1/7½	1/8½	1/7½	1/7½	1/8	‡1/2½ †1/2½
Greenock	1/7½	1/7½	1/7½	1/8½	1/7½	1/7½	1/7	1/2½
Hamilton	1/7½	1/7½	1/7½	1/8½	1/7½	1/7½	1/8	‡1/2½ †1/2
Hawick	1/7	1/7	1/7	1/7-1/7½	1/7	1/7	1/7	1/2½
Helensburgh	1/7½	1/7½	1/7½	1/8½	1/7½	1/7½	1/7	1/2½
Inverness	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/– to 1/2
Kilmarnock	1/7½	1/7½	1/7½	1/8½	1/7½	1/7½	1/8	1/2½
Kirkcaldy	1/7½	1/7½	1/7½	1/8½	1/7½	1/7½	1/8	‡1/2½ †1/2½
Kirkwall	1/5	1/5	1/4	1/5	1/5	1/4	1/4	1/–
Lanark	1/7½	1/7½	1/7½	1/8½	1/7½	1/7½	1/8	‡1/2½ †1/2½
Leith	1/7½	1/7½	1/7½	1/8½	1/7½	1/7½	1/8	‡1/3½ †1/2½
Motherwell	1/7½	1/7½	1/7½	1/8½	1/7½	1/7½	1/8	‡1/2½ †1/2½
Perth	1/7½	1/7½	1/7½	1/8½	1/7½	1/7½	1/8	‡1/2½ †1/3½
Stirling	1/7½	1/7½	1/7½	1/8½	1/7½	1/7½	1/7½	1/2½
Stirlingshire (Eastern District)	1/7½	1/9	1/7½	1/8½	1/7½	1/7½	1/8	1/2½
Wishaw	1/7½	1/7½	1/7½	1/8½	1/7½	1/7½	1/8	‡1/2½ †1/2½

* The information given in this table is copyright. The rates of wages in the various towns in England and Wales are given on page 152.

NEW COMPANIES

BULLAND (WEST EALING), LTD. (244,542). Registered December 23. 16, Uxbridge-road, Ealing, W.5. Builders, contractors, etc. Nominal capital, £2,000.

LOUIS G. FORD, LTD. (244,578). Registered December 23. 12, Station-parade, Eastbourne. Builders' merchant, etc. Nominal capital, £25,000.

E. T. GETHING & Co., LTD. (244,548). Registered December 23. 7, Broken Wharf, Upper Thames-street, E.C.4. Builders and decorators, etc. Nominal capital, £2,000.

HARRY BREWER & SON, LTD. (244,678). Registered December 28. House and estate agents, builders' merchants and brickmakers. At West Moors, Ferndown, Dorset. Nominal capital, £8,000.

TILERS, LTD. (244,584). Registered December 23. Stourton, Leeds. Manufacturers of tiles, bricks, pipes and pottery, etc. Nominal capital, £100.

ESSEX WILLIAMS & SON, LTD. (244,567). Registered December 23. Builders, contractors and decorators. At Vere-street, Cardiff. Nominal capital, £3,000.

RICHARDSON BUILDING SUPPLIES, LTD. (244,503). Registered December 20. 3, Raymond Buildings, Gray's Inn, W.C.1. Nominal capital, £5,000.

HARRISON & CO. (CRICKLEWOOD), LTD. (244,439). Registered December 20. Builder and decorator. Cricklewood, N.W. Nominal capital, £1,000.

E. WOODFIELD, LTD. (244,486). Registered December 20. George-street, Watford. Stone and monumental mason. Nominal capital, £2,500.

HOPKINSON (MIDDLESEX), LTD. (244,632). Registered December 27. 19, Grosvenor-place, Westminster, S.W.1. Builders and contractors, house and estate agents, etc. Nominal capital, £500.

BROWNSFIELD ESTATES, LTD. (244,688). Registered December 30. To acquire the Brownsfield Estate, Manchester; to develop and manage the said property; to prepare land for building, etc. Nominal capital, £50,000. E. B. Leech, M.D., 16, St. John-street, Manchester.

SPICERS (BUILDERS), LTD. (244,702). Registered December 30. Builders and contractors. 28, Penbury-street, Worcester. Nominal capital, £1,000.

HARRISON & SPOONER, LTD. (244,677). Registered December 28. Builder and decorator. 14 and 16, Hewett-street, E.C.3. Nominal capital, £9,000.

E. L. MAIDEN, LTD. (244,547). Registered December 23. 36, Bolsover-street, Great Portland-street, W.1. Heating and ventilating engineers, etc. Nominal capital, £1,000.

T. BROWN & SON (HERNE HILL), LTD. (244,643). Registered December 27. 280, Milkwood-road, Herne Hill, S.E.24. Builders and decorators, etc. Nominal capital, £2,000.

VULCANIZED FIBRE MARKETING BOARD, LTD. (244,131). Registered December 5. Nominal capital, £1,000.

Inventions in 1929.

Messrs. Gee & Co. write:—During 1929, 39,927 patents were applied for in this country. It is impossible at this date to allocate these patent applications either as to countries of origin or as to subject-matter of the inventions, but it is probably safe to say that, so far as patent applications coming from abroad are concerned, the bulk of them have come from Germany and the U.S.A. In 1928, the number of patents applied for was 38,556, this being the largest number on record for any single year up to that date. Of this number, 4,694 came from Germany, 3,478 from the U.S.A., 1,547 from France, and smaller numbers from various other countries, these figures having been taken from the Comptroller's report. What an advance the above figures show upon those of some centuries ago! For example, in the period 1561-1603 (42 years) the Crown made 21 grants (patents) to aliens and 30 grants to natives.

CURRENT PRICES FOR BUILDING WORK IN LONDON*

EXCAVATOR.

		s.	d.
Digging and throwing or wheeling and filling carts, and carting away to shoot—6 ft. deep	per yard cube	11	0
Add if in clay	" "	1	0
Add for every additional depth of 6 ft.	" "	0	6
Planking and strutting to trenches	per foot super	0	5
Do. to sides of excavation, including shoring	" "	1	0

CONCRETOR.

		s.	d.
Portland cement concrete in foundation 1 to 6	per yard cube	38	0
Add if in underpinning in short lengths	" "	7	0
Add if in floors 6 in. thick	" "	3	3
Add if in beams	" "	3	9
Add if aggregate 1 : 2 : 4	" "	10	0
Add for hoisting not exceeding 10 ft. beyond the first 10 ft.	" "	2	6

BRICKLAYER.

		£	s.	d.
Reduced brickwork in lime mortar and Fletton bricks	per rod	32	0	0
Add if in stocks	"	7	10	0
Add if in Staffordshire blues	"	22	0	0
Add if in Portland cement and sand	"	1	10	0

FACINGS.

		s.	d.
Extra for facing in English or Flemish bond for every 10s. per 1,000 over the price of the common bricks	per ft. super	0	1½

POINTING.

		s.	d.
Neat flat struck or weathered joint	"	0	3

ARCHES.

		s.	d.
Extra only to the price of ordinary brickwork :—			
Fair external in half brick rings	" "	0	10
Axed in stocks	" "	1	9
Rubbed and gauged jointed in putty camber or segmental	" "	6	0

SUNDRIES.

		s.	d.
Damp course in double course of slates breaking joint and bedded in Portland cement	" "	1	0
Setting ordinary register grates and stoves	each	1	0
Setting kitchener, including forming flues, &c., with all necessary fire bricks	"	4	15

ASPHALTER.

		s.	d.
Half-inch horizontal damp course	per yard super	4	6
Three-quarter-inch vertical damp course	" "	9	6
Three-quarter-inch on flats in two thicknesses	" "	6	3
Angle fillet	per foot run	0	3
Skirting and fillet 6 in. high	" "	1	2

MASON.

		s.	d.
York stone templates fixed	per foot cube	13	0
York stone sills fixed	" "	22	0
Bath stone and all labour fixed	" "	10	6
Beer stone and all labour fixed	" "	15	0
Portland stone fixed	" "	20	0

SLATER.

		s.	d.
Welsh 16 in. × 8 in. 3 in. lap, including nails	per square	72	9
Do. 20 in. × 10 in. Do. Do.	"	80	9
Do. 24 in. × 12 in. Do. Do.	"	90	0

CARPENTER AND JOINER.

		s.	d.
Fir framed in plates	per foot cube	5	0
Do. joists	" "	5	6
Do. roofs, floors and partitions	" "	6	0
Do. trusses	" "	8	6

		¾"	1"	1¼"	2"
Deal rough close boarding	per sq.	35/6	40/-	45/-	72/-

		s.	d.
Flat centering for concrete floor, including struts or hangers	"	50	0
Do. to beams	per ft. sup.	0	11
Centre for arches	"	1	6
Gutter boards and bearers	"	1	0

FLOORING.

		¾"	1"	1¼"	1½"
Deal-edges shot	per sq.	—	44/6	53/-	60/6
Do. tongued and grooved	"	—	49/-	57/6	65/-
Do. matchings	"	45/-	51/-	—	—
Moulded skirting, including backings and grounds	per ft. sup.	1/6	1/9	2/-	2/6

SASHES AND FRAMES.

		s.	d.
One-and-a-half moulded sashes or casements	per foot super	1	10
Two Do. Do. Do.	" "	2	1
Add for fitting and fixing	" "	0	3
Deal-cased frames with 1 in. inner and outer linings, 1¼ in. pulley stiles tongued to linings, hard wood sills with 2 in. moulded sashes in squares, double hung, double hung with pulleys, lines and weights; average size	" "	3	9

DOORS.

		1¼"	1½"	2"
Two-panel square framed	per ft. sup.	2/1	2/4	2/6
Four-panel Do.	"	2/5	2/8	2/11
Two-panel moulded both sides	"	2/8	2/11	3/2
Four-panel Do. Do.	"	2/11	3/2	3/5

CARPENTER AND JOINER—continued.

FRAMES.

		s.	d.
Deal wrot moulded and rebated	per foot cube	14	0

		1"	1¼"	1½"
Plain deal jamb linings framed	per ft. sup.	1/7	1/8	1/11
Deal shelves and bearers	"	1/4	1/6	1/9
Add if cross-tongued	"	2d.	2d.	2d.

STAIRCASES.

	1"	1¼"	1½"	2"	2½"
Deal treads and risers in and including rough brackets	2/1	2/4	2/9	—	—
Deal strings wrot on both sides and framed	1/8	2/-	2/2	2/8	—

		s.	d.
Housings for steps and risers	each	0	11
Deal balusters, 1 in. × 1¼ in.	per ft. run	0	9
Mahogany handrail : average, 3 in. × 3 in.	" "	6	0
Add if ramped	" "	12	0
Add if wreathed	" "	24	0

FIXING ONLY IRONMONGERY (INCLUDING SCREWS).

6 in. barrel bolts	8½d.	Rim locks	2/-
Sash fasteners	11½d.	Mortice locks	4/6
Casement fasteners	1/5	Patent spring hinges and letting into floor and making good	19/-
Casement stays	1/2		
Cupboard locks	1/5		

FOUNDER AND SMITH.

		s.	d.
Rolled steel joists	per cwt.	16	3
Plain compound girders	"	19	0
Do. stanchions	"	21	9
In roofwork	"	27	6

RAIN-WATER GOODS.

		3"	4"	5"	6"
Half-round plain rebated joints	ft. run	1/6	1/9	2/-	2/6
Ogee Do. Do.	"	1/9	2/-	2/6	3/3
Rain-water pipes with ears	"	1/9	2/7	—	—
Extra for shoes and bends	each	4/4	5/11	—	—
Do. stopped ends	"	1/11	2/4½	3/7	4/-
Do. nozzles for inlets	"	2/2	2/7	3/10	4/3

PLUMBER

		s.	d.
Milled lead and laying in flashings and gutters	per cwt.	44	0
Do. Do. in flats	"	43	0
Extra labour and solder in coated cesspools	each	6	9
Welf joint	per ft. run	0	6
Soldered seam	" "	1	3
Copper nailing	" "	0	3

		½"	¾"	1"	1½"	2"	4"
Drawn lead waste	per ft. run	1/2	1/9	2/-	3/4	4/-	—
Do. service	"	1/8	2/2	2/7	3/10	—	—
Do. soil	"	—	—	—	—	—	6/9
Bends in lead pipe	each	—	—	—	—	3/3	8/2
Soldered stop ends	"	1/2	1/8	2/1	2/10	3/6	—
Red lead joints	"	11d.	1/-	1/3	1/11	2/4	4/10
Wiped soldered joints	"	2/10	3/6	4/-	4/11	6/6	9/9
Lead traps and cleaning screws	"	—	—	—	14/7	19/6	—
Bib cocks and joints	"	6/4	9/7	15/4	41/-	—	—
Stop cocks and joints	"	15/4	17/2	25/8	64/-	—	—

PLASTERER.

		s.	d.
Render, float and set in lime and hair	per yard sup.	2	6
Do. Do. Sirapite	" "	2	9
Do. Do. Keen's	" "	4	0
Add saw lathing	" "	1	7
Add metal lathing	" "	2	6
(Not including hangers or runners, etc., for suspended ceilings.)			
Portland cement screed	" "	2	2
Do. plain face	" "	3	3
Mouldings in plaster	per 1 girth	0	1½
One-and-a-half granolithic pavings	per yard sup.	5	6

GLAZIER.

		s.	d.
21-oz. sheet plain	per foot sup.	0	8½
26-oz. Do.	" "	1	0
Obscured sheet	"	1	1
¼-in. rolled plate	" "	0	9
¼ in. rough rolled or cast plate	" "	0	10½
½-in. wired cast plate	" "	1	4

PAINTER.

		s.	d.
Preparing and distempering, 2 coats	per yard sup.	0	9
Knotting and priming	" "	0	7
Plain painting, 1 coat	" "	0	9
Do. 2 coats	" "	1	2
Do. 3 coats	" "	1	9
Do. 4 coats	" "	2	4
Graining	" "	2	3
Varnishing twice	" "	1	9
Sizing	" "	0	3
Flatting	" "	0	7
Enamel	" "	1	1
Wax polishing	per foot sup.	0	6
French polishing	" "	1	2
Preparing for and hanging paper	per piece, 2/- to 4/-		

* These prices apply to *new buildings only*. They cover superintendence by foreman and carry a profit of 10% on the prime cost without establishment charges. A percentage of 1½ should be added for Employers' Liability and National Health and Unemployment Acts and from 1s. 6d. per £100 for Fire Insurance. The whole of the information given on this page is copyright.

TENDERS

Communications for insertion under this heading should be addressed to "The Editor," and must reach him not later than Tuesday evening.

* Denotes *accepted*.
† Denotes *provisionally accepted*.
‡ Denotes *recommended for acceptance*.
\ Denotes *accepted subject to modifications*.
¶ Denotes *accepted by H.M. Office of Works and H.M. War Office*.

Barnsley.—New reservoir at Champany Hill, for the T.C. Mr. J. R. Fox, Waterworks Engineer :—
*T. Whitaker & Co., Ltd., Leeds £10,497
(In lieu of previous tender.)

Barton-on-Humber.—Secondary school, for the Lindsey E.C. Mr. H. G. Gamble, County Architect, Bank-street-chambers, Lincoln :—

B. Pumfrey, Ltd., Gainsborough	£22,245 0 0
Wilkinson & Houghton, Ltd., Cleethorpes	21,660 2 0
W. Marlow & Sons, Ltd., Hillsborough, Sheffield	21,641 0 0
Stamp & Son, Barton-on-Humber	21,581 11 0
Thos. Bates & Son, Ltd., Earlsdon, Coventry	21,500 0 0
Gilbert & Hall, Ltd., Nottingham	20,949 0 0
E. E. Dale & Sons, Ltd., Cleethorpes	20,945 11 11
Kettlewell, Sons & Co., Ltd., Hull	20,161 17 2
G. R. Usher, Barton-on-Humber	20,053 9 0
H. Ashton, Barton-on-Humber	19,988 13 6
†T. Jenkinson & Sons (Doncaster), Ltd., Doncaster	19,766 13 11

Bath.—Extensions to the Bath Spa Hotel. Mr. Matthews, F.R.I.B.A., architect, 550, Oxford-street, London, W.1 :—
*J. Long & Sons, Ltd., Railway-road, Bath.

Belfast.—Masonic Hall in Park-road. Messrs. McIlveene, architects, 2, Wellington-place :—
Main contractors—*M'Quid, Ltd., Belfast.
Terra-cotta and stone dressing—*Hathern Station Brick & Terra-cotta Co., Ltd., Cliff Works, Tamworth.

Belfast.—Works, for the E.C. :—
Electric light installation, North-road P.E. school—
*G. Macartney, Church-street, Belfast ... £544
Heating installation, North-road P.E. school—
*Musgrave & Co., Ltd., St. Anne's Ironworks, Belfast 1,428
Heating installation, Harding Memorial P.E. school—
*W. Willis & Co., 21, Dublin-road, Belfast 321

Belper.—Extensions to the sewage disposal works at Holbrook, for the R.D.C. Messrs. Elliott & Brown, chartered civil engineers, Burton-buildings, Parliament-street, Nottingham :—

Fletcher & Co., Ltd., 32, Leeming-street, Mansfield	£728 6 0
G. F. Tomlinson & Sons, City-road, Derby	534 10 0
Matthew Arundel, East Ardsley, Wakefield	516 7 0
A. Graham & Sons, Huddersfield	500 0 0
C. S. Tomlinson, Station Mill, Alfreton	485 0 0
Harris & Hunt, Marehay, Derby	455 0 0
T. Beighton, Birmingham	451 6 0
H. H. Barry, Radcliffe-on-Trent	430 0 0
W. W. Tomlinson, South Normanton	421 1 7
J. & J. Warner, Mickleover, near Derby	415 0 0
Bowmer & Kirkland, Heage, near Belper	399 7 11
*O. Gration, Nether Heage, Belper	358 0 0

Breconshire.—Boiler house at the Brynmawr girls' and infants' schools, for the E.C. Mr. H. C. W. Strickland, F.R.I.B.A., County Architect :—

Bidder & Co., Manchester	£444
T. Dickinson, Tredegar	288
Wm. Arthur, Abersychan	281
Foster & Hill, Abergavenny	273
B. W. Davies, Blaina	260
F. Hann, Ebbw Vale	253
*White Bros., Sunny Bank, Brynmawr	249

Biggleswade.—Four houses at Potton, for the R.D.C. Mr. F. C. Levitt, architect, Market-square :—

G. Bartle & Son, Potton	£1,440
*C. Hutchinson, Potton	1,392

Birmingham.—Block of office premises in John Bright-street. Messrs. Bloomer & Gough, L.R.I.B.A., architects, 14, Temple-street :—
*W. Juggins & Co., 12a, Carpenters-road, Lozells, Birmingham, contractors.

Brigg.—Additions and alterations to the Grammar school, for the Lindsey E.C. Mr. H. G. Gamble, County Architect, Bank-street-chambers, Lincoln :—

Bernard Pumfrey, Ltd., Gainsborough	£11,794 0
W. Pallister, Ltd., Scunthorpe	11,225 0
Gilbert & Hall, Ltd., Nottingham	10,900 0
R. M. Phillips, Brigg	10,549 15
H. Ashton, Barton-on-Humber	10,289 7
†T. Jenkinson & Sons (Doncaster), Ltd., Doncaster	9,947 13

Bucklow.—Alterations and additions to Dunham Massey sewage disposal works, for the R.D.C. Mr. E. Curtis Gordon, engineer and surveyor, 24-26, Station-buildings :—
*C. Collins & Co., Stand-lane, Radcliffe, Manchester.

Burton-on-Trent.—28 houses at Anglesey, for the C.B. Mr. George T. Lynam, Borough Engineer and Surveyor :—
*G. Hodges & Son, Burton-on-Trent £12,487 16

Garburton.—Widening in reinforced concrete of two bridges on the Worksop and Cadlam main road, for the Notts C.C. :—
*A. Eastwood & Sons, Warsop £1,162

Carlton.—100 living-room type houses on Chatsworth-avenue site, for the U.D.C. Mr. J. A. West, A.R.I.B.A., architect and surveyor, Free Library, Manor-road :—
*S. Johnson, Hucknall £31,370
(Subject to approval of M.H.)

Colchester.—Rebuilding and extensions to shop premises in the arcade in Long Wyre-street. Messrs. Goodey & Cressall, architects and surveyors, St. Peter's-chambers, High-street :—
*F. Hutton & Son, Birch, Colchester.

Dagenham.—Wesleyan Central hall. Messrs. Gelder & Kitchen, FF.R.I.B.A., architects, 120, Alfred Gelder-street, Hull :—
*H. Somerford & Son, Ltd., 104, Manor-street, Clapham, S.W.

Doncaster.—Reconstruction work at the offices of the Prudential Assurance Co., Ltd., in High-street :—
Builder—*A. C. Lister.
Asphalters—*Tunstall's Rock Asphalte Co., Ltd.

Doncaster.—Electric installation to 180 houses on the Intake housing estate, for the Corporation :—
*Building & Colliery Supply Co., Ltd. £742 10

Dublin.—Electrical installations, including lighting and power at the City Abattoir, North Circular-road, for the C.B. City Engineer, 28, Castle-street :—
*Hadens Engineering Co., Ltd., 199 and 200, Pearse-street, Dublin £1,897

Dunmow.—Houses, for the Council :—

Twelve houses, Thaxted—	
*T. Harris	£4,136
Four, Great Bardfield—	
*—, Pring	1,300
Fourteen, Great Dunmow—	
*—, Goodey	4,300
Ten, Great Dunmow—	
*T. Harris	3,400
Six, Great Dunmow—	
*F. H. Stewart	2,010
Two, Little Easton—	
*D. King	648
Four, Hatfield Broad Oak—	
*H. E. Uncle	1,380
Four, High Roding—	
*A. Clark	1,281
Four, White Roding—	
*A. Clark	1,274
Eight, Stebbing—	
*T. A. Goodey	2,196

(Subject to M.H. approval.)

Finedon.—Infants' school with accommodation for 250 scholars, for the Northants E.C. Mr. G. H. Lewin, County Architect, County Education Offices, Northampton :—
*Childs & Co., Finedon.

Glenfield.—Junior Council school, for the Leicestershire E.C. Mr. Ernest G. Fowler, architect and surveyor :—

Bowles & Son, Leicester	£6,892 0
G. Gambie, Kibworth	6,796 0
W. Everard & Son, Glenfield	6,742 11
Toone, Richardson & Disney, Anstey	6,735 0
W. Moss & Sons, Ltd., Loughborough	6,599 0
J. Jelley & Son, Leicester	6,578 0
Chitham & Co., Ltd., Leicester	6,500 0
Browning Bros., Humberstone	6,458 18
Walter Potter, Narborough	6,450 0
T. W. Bilson, Leicester	6,344 10
T. G. Lee, Stoke Golding	6,324 10
Haskard, Son & Co., Ltd., Leicester	6,300 0
E. Fox & Co., Leicester	6,285 0
F. Elliott, Leicester	6,285 0
Clark & Garrett, Leicester	6,270 0
W. Moss & Son, Coalville	6,257 10
J. C. Kellett & Son, Leicester	6,220 0
Hedley V. Batchelor, Fleckney	6,151 9
Armson & Hollis, Kirby Muxloe	6,146 0
W. Smith & Sons, Glenfield	6,128 19
Sherriff & Co., Ltd., Leicester	6,050 0
*Orton & Co., Coalville	5,845 0

Great Yarmouth.—Additions of class rooms, art and cloak room, etc., at the Girls' High school, Trafalgar-road, for the Governors. Messrs. Olley & Haward, architects, 5, Queen-street :—

H. A. Holmes & Son	£4,200
H. R. Middleton & Co., Ltd.	3,680
R. Chaston	3,619
E. E. Pestell	3,597
R. H. Carter & Son, Ltd.	3,447
D. Leighton & Son	3,380
B. G. Beech	3,276
*Moore & Son, Lichfield-road	3,265

(All of Great Yarmouth.)

Grimsby.—Council school on a site at Nunsthorpe. Mr. Herbert C. Scaping, L.R.I.B.A., architect, Court-chambers, Town Hall-square :—
*R. Mark Phillips, Bigby-street, Brigg.

Guildford.—Alterations and additions to the Borough police station, North-street, for the T.C. Mr. J. W. Hipwood, Borough Engineer and Surveyor :—

R. Holford & Co.	£845 0
W. G. Tarrant	786 0
R. Wood & Son	762 0
Tribe & Robinson	744 0
Spear & King	728 0
T. Swayne & Son	726 0
Guildford Guild of Builders	679 0
W. Frampton & Co.	668 19
*F. H. Billimore & Son	651 8

(All of Guildford.)

Horsham.—Houses, for the U.D.C. :—
*Murrell Bros., Horsham £12,010
(Subject to M.H. approval.)

Huddersfield.—Exterior painting of the Town Hall and Municipal Offices, for the Corporation. Borough Architect, 26, Ramsden-street :—
*A. Preston, Crosland Moor, Huddersfield.

Huddersfield.—Erection of (a) 34 houses and (b) 36 houses at Lowerhouses, Almondbury, for the T.C. Mr. L. Smith, architect, 26, Ramsden-street :—

(a)
*F. Lindley & Sons, Huddersfield.
Joiner—*J. E. Whitehead & Sons, Halifax.
Plumber—*Best Bros.
Plasterer—*H. Castle & Sons, Ltd., Brighouse.
Slater—*W. E. Jowitt, Huddersfield.
Painter—*E. Eccles.
Electrician—*H. C. Stringer, Milnsbridge.
Concretor—*E. H. White, Milnsbridge.

(b)
*J. T. & H. Bottomley, Huddersfield.
Joiner—*J. Lawson & Sons, Slaithwaite.
Plumber—*J. Marsden & Sons.
Plasterer—*H. Castle & Sons, Ltd., Brighouse.
Slater—*T. Allison, Ltd.
Painter—*J. A. Schorah, Mirfield.
Electrician—*J. Marsden & Sons, Huddersfield.
Concretor—*E. H. White, Milnsbridge.

Hounslow.—Two public conveniences and two shelters at the Lampton Park, Hounslow, for the Heston and Isleworth U.D.C. Mr. J. G. Carey, engineer and surveyor :—

Fox & Champion	£3,889	0	0
C. J. Piercey	3,756	19	1
Thos. Hiscock, Ltd	3,385	0	0
W. Emmett	3,353	5	9
Moorman Ward & Co.	3,312	6	0
Cain & Co.	3,107	2	0
*A. J. Thair, 109, The Grove, Isleworth	3,055	0	0

(All of Hounslow.)

Hull.—110 parlour and non-parlour houses on Willerby-road estate, for the T.C. Mr. D. Harvey, A.R.I.B.A., City Architect :—

*C. H. Smith, Hull £37,782

Hull.—Wood fencing at Endyke-lane school site, for the E.C. Mr. R. C. Moore, Director of Education :—

*J. M. Simpson, Leven, near Hull.

Hull.—Band stand and refreshment pavilion at West Park, for the T.C. Mr. T. Thomas, City Engineer :—

*Markwell, Holmes & Hayton, Ltd., Hull £1,310

Hull.—For (a) assistant M.O. residence, (b) writing-room, (c) coal store to pavilion, (d) entrance gates to Infectious Diseases Hospital at Cottingham, for the T.C. Mr. D. Harvey, A.R.I.B.A., City Architect :—

*R. Cleminshaw, Hull £3,660

Ipswich.—Installation of heating and hot water supply systems at the Infirmary at Woodbridge-road, Heathfields, for the B.G Messrs. J. A. Sherman, architects, 9, Northgate, Ipswich.

*Griffiths, Sons & Cromwell, Ltd., Liverpool £595

Kingswinford.—50 non-parlour type cottages on the Tiled House site, Pensnett, for the R.D.C. Mr. W. Meredith, surveyor, Council Offices, Wordsley, Stourbridge :—

*E. R. R. Tooby, Stourbridge.

Langport.—6 houses on the Barrington housing site, for the R.D.C. :—

*J. Dyer & Sons, Curry Rivel *per house* £340

Leicester.—Extensions to the Isolation Hospital, for the City Council. Messrs. Symington & Price, L. & A.R.I.B.A., architects, 8, Market-street :—

*Sheriff & Co., Ltd, 444, Gipsy-lane, Leicester.

Llangefni.—Providing and laying cast-iron pipes, and inserting fittings, building float-valve chambers, etc., and cementation of open concrete-lined reservoir of 900,000 gallons capacity, for the U.D.C. Mr. H. C. Adams, consulting engineer, 60, Queen Victoria-street, E.C.4 :—

Alteration to mains, etc.—
*Fothergill Bros., Ltd., Exeter ... £1,940 15 5

Cementation of reservoir—
*Francois Cementation Co., Doncaster 2,806 0 0

London.—The following contracts have been entered into by H.M.O.W. during the week ended the 28th instant :—

Natural History Museum, South Kensington—internal decorations—W. E. Greenwood & Son, Ltd., Mordaunt-road, Harlesden, N.W.10.
Bayswater Telephone Exchange—erection of—A. Roberts & Co., Ltd., 74, Earl's Court-road, Kensington, W.
Blackpool Head Post Office and Telephone Exchange—alterations, etc.—W. Eaves & Company, Ltd., Daggers Hill Saw Mills, Vicarage-lane, Blackpool.
Ventnor District—ordinary works and repairs—H. Ingram & Sons, Albert-street, Ventnor.
Aberdeen District.—plumber's work—J. F. Anderson, 33-8, Summer-street, Aberdeen.

London.—The following works contracts have been placed by the War Office during the week ended January 2 :—

Dungeness—acoustical mirror—Concrete Structures, Ltd., London, S.W.1.
Glasgow, Maryhill Barracks—improvements to W.O.'s quarters—J. Baxter & Sons, Glasgow.
Aldershot—erection of urinals and w.c.'s—Lee Bros., Aldershot.
Larkhill—erection of sergeants' mess—A. E. Lailey, Ltd., Salisbury.

London.—Alterations to refractory cells at the Swaffield-road Institution, for the Wandsworth B.G. :—

F. C. Flack	£750	0	
Hudson Bros.	660	0	
R. G. Vipond	650	0	
W. Brazell & Sons	639	0	
J. Walker & Sons	637	10	
R. A. Jewell, Ltd.	595	0	
*R. S. Ronald, St. Ann's Hill, S.W.18	555	0	

Maidenhead.—Boundary wall and fence at the Isolation Hospital, for the T.C. :—

The Allied Building Corporation, London	£365
Francis Bros., Tilehurst	321
Halfacre & Young, Maidenhead	251
Thomas Free & Sons, Frenchay, near Bristol	236
Cripps & Green, Ltd., Maidenhead	218
W. Creed & Co., Maidenhead	217
W. Cox & Sons, Maidenhead	216
*J. K. Cooper & Sons, Maidenhead	202

Maidenhead.—New diphtheria block at the Isolation Hospital, for the T.C. :—

G. H. Dibblin, Dartford	£5,079
E. C. Hughes, Wokingham	4,788
W. G. Lowe Bros., Twyford	4,646
Cox & Sons, Maidenhead	4,556
Francis Bros., Tilehurst	4,546
The Allied Building Corporation, Ltd., London	4,527
Hinkins & Frewin, Ltd., Oxford	4,500
Halfacre & Young, Maidenhead	4,469
James & Sons, Maidenhead	4,416
A. C. Dean, High Wycombe	4,390
Boshiers (Cholsey), Ltd., Cholsey	4,382
J. K. Cooper & Sons, Maidenhead	4,338
Cripps & Green, Ltd., Maidenhead	4,235
Y. J. Lovell & Sons, Marlow	4,180
*W. Creed & Co., Maidenhead	3,948

Manchester.—New premises in Market-street, for Messrs. Rylands & Sons, manufacturers :—

*J. Gerrard & Sons, builders, Swinton, near Manchester.

Manchester.—Offices and canteen to works in Upper Stanley-street and Brewer-street, for Messrs. Hall & Pickles, Ltd., 64, Port-street. Messrs. W. Johnson & Son, architects, 27, Oldham-road, Miles Platting :—

*Tinker & Young, Ltd., Newton Heath.

Newport (Mon).—Branch banking premises for Barclays Bank, Ltd., at the corner of Corn-street and Commercial-street. Messrs. Habershon & Fawckner, F.R.I.B.A., architects, 41, High-street :—

*E. Turner & Sons, Ltd., Penarth-road, Grancetown, Cardiff.

Northampton.—Internal decorations to 277 houses and tenements, for the C.B. :—

*T. J. Gudgeon	£241	5	
*A. E. Bellham	167	0	
*F. Griffiths & Son	245	0	
*A. H. Griffiths	87	10	
*Westley & Edwards	223	0	

Norwich.—New building for the County Surveyor's department, for the Norfolk C.C. Messrs. E. T. Boardman & Son, architects :—

*Bullen & Son, Cromer £16,750

Otley.—100 houses on the Westbourne-park estate, for the U.D.C. :—

†J. Newsome Walker, Horsforth £51,063

Oxford.—For new classrooms at (1) East Oxford Council infants' school, and (2) South Oxford Council infants' school, for the E.C. :—

(1)—
*Hinkin & Frewin, Ltd., Cranham-street, Oxford £1,320

(2)—
*Hinkin & Frewin, Ltd., Cranham-street, Oxford 940

Preston.—Houses, for the T.C. Borough Engineer and Surveyor :—

Eight, Swansea estate—
*Pius A. Baines & Son, Preston..... £3,040

Twenty-two in Fishwick-parade—
*A. Swarbrick, Bold-street, Preston ... 8,240

Rotherham.—New pit-head baths at the New Stubbin Collieries, for the Miners' Welfare Committee. Mr. J. H. Forshaw, architect :—

*R. Walker & Sons, Castleford.

Scarborough.—Golf club house on the South Cliff, for the South Cliff Golf Club. Mr. L. K. Sanderson, L.R.I.B.A., architect, York-place :—

*A. W. Sinclare & Sons, Scarborough £4,000

Sheffield.—Building on the site of a Thatched House and existing buildings in High-street, for Messrs. Boots' Pure Drug Co., Ltd., Station-street, Nottingham :—

*T. Wilkinson & Sons (Builders), Ltd., Sheffield.

Sheffield.—Garage at Millhouses, for the Sheffield and Eccleshall Co-operative Wholesale Society, Ltd., Eccleshall-road. Architect's Department, C.W.S., Ltd., Balloon-street, Manchester :—

*Building Department, C.W.S., Ltd., Sheffield.

South Mimms.—500 yards of road from the northern end of Cranborne-road to the sewage disposal works at Potters Bar, for the R.D.C. Mr. G. Simcox, surveyor, The Causeway, Potters Bar :—

Wimpey & Co., Ltd., Hammersmith	£7,665
John White, Birmingham	6,100
Bell & Sons, Tottenham	4,797
Greasley, Ltd., Leicester	4,150
*T. Rainbow, Palmers Green	4,141

Southwell.—Cottage for sewage works manager, at Bilsthorpe, for the R.D.C. Messrs. Sands & Walker, architects, Milton-chambers, Nottingham. Quantities by the architects :—

W. N. Stubbings, Cuckney	£963
W. D. Tuck, Southwell	934
Harper & Green, Carlton	898
H. G. Hutchinson, Southwell	875
Rogers & Crooks, Mansfield	820
W. H. Chargill, Farnsfield	815
J. Warner, Pleasley	810
*A. Mason, Mansfield	785

Stockton-on-Tees.—Extensions and adaptations to the Portrack Council School, for the Corporation. Mr. G. P. Stainsby, architect, 25, High-street :—

*J. C. Watson, Stockton-on-Tees £7,749

Uxbridge.—Interior decorations and repair of 47 houses in George-street, Montague-road, Chippendale Waye and Hillingdon-road, for the U.D.C. Mr. William L. Eves, F.R.I.B.A., 54, High-street :—

*Fassnidge & Son, Uxbridge £327 13

Wadsley.—Plasterer's work and wiring for electric light at the Mental Hospital, near Sheffield, for the West Riding Mental Hospitals Board. Mr. W. E. W. Burton, architect and engineer, West Riding Mental Hospitals Board, Wakefield :—

Plasterer's work—
*Chadwick & Son, Victoria-street, Sheffield £764 14

Wiring for electric light—
*Richard B. Isle & Co., 22, Priory-place, Doncaster 130 10

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Walthamstow.—U.M. Church in Penrhyn-crescent, for the Mathews Memorial. Messrs. George Baines & Son, F.R.I.B.A., architects, 123, Victoria-street, S.W.1. Surveyor, Mr. Henry Smith, F.S.I., 37, High Holborn, W.C.1 :—

G. M. Page	£11,353	10	6
F. & H. F. Higgs	10,666	0	0
W. M. Brand	10,590	0	0
E. H. Smith	10,283	0	0
H. Knight & Son	10,213	0	0
Dove Bros., Ltd.	10,175	0	0
E. J. Coxhead	9,904	0	0
*A. E. Symes, Ltd., Carpenter's-road, Stratford, E.	9,877	0	0

(All of London.)

Warwickshire.—Widening the main line between Olton station and Bentley Heath level crossing, for the G.W.R. Engineer, Paddington Station :—

*Cleveland Bridge and Engineering Co., Ltd., Darlington.

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Winchester.—50 houses at St. Martin's-close, for the T.C. :—

*F. G. Bursills.

Woodlesford (Yorks).—Four houses at Eshalt-place :—

*L. Armitage.

Worthing.—Boundary Walls, etc., at Marine-gardens, for the T.C. Borough Surveyor :—

Longley & Co., Crawley	£4,960	0	0
Limpus & Son, Ltd., Hove	4,700	0	0
Bodle & Co., Ltd., Eastbourne	4,194	0	0
Sandell & Sons, Worthing	4,070	0	0
*Sandell & Sons, Worthing	3,692	11	10

Wythall.—Earth closets at Silver-street school, for the Worcestershire E.C. :—

*W. Weaver, Central Joinery Works, Strand, Bromsgrove £400

Devon Education Extensions.

The Devon Education Committee proposes the following building programme for 1930 :—School on a site at Plympton; additional accommodation at Hatherleigh premises; junior school at St. Budeaux; new senior school at Torrington; extensions at Woolbrook School, Sidmouth; and new premises on sites at Bampton and Ilfracombe. The Education Committee's Secretary is Mr. J. F. Young, M.A., Exeter.

Marking Order Recommended for Imported Roofing Slates.

The Standing Committee under the Merchandise Marks Act, 1926, have reported to the Board of Trade on their inquiry into the question of imported slates for roofing. The Committee consider that the case for a Sale Order for marking has been made out, but that there are not sufficient grounds for an Importation Order. The Committee say they consider that the fear of one of the opponents that a Sale Order would be largely evaded by direct importation by the user is not well founded. It was shown by the evidence that where slates are employed the roofing is generally the subject of a sub-contract, and is usually carried out for the builder by a roofing contractor, who supplies the slates. It is pointed out also that there is a possibility that inspection of slates at the port might lead to breakage and delay. The Committee recommend that each imported roofing slate shall be required, on sale or exposure for sale, to bear an indication of origin applied by rubber stamping or stencilling. The Committee's Report is published by the Stationery Office (Cmd. 3461, price 2d.).

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